

BATHING WATER QUALITY IN ENGLAND AND WALES — 1991



Report of the
National Rivers Authority

June 1992



NRA

National Rivers Authority

Water Quality Series No. 8

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PREFACE

In a previous NRA report, the background to the EC Bathing Water Directive was described, together with the results of the 1990 survey of bathing waters in England and Wales. Such is the nature of, and interest in, the quality of bathing waters, however, that the changes from year to year are by no means restricted to the number of waters which do or do not comply with the Directive; changes also occur to the use which is made of the results of the surveys, and to the means of attaining survey results which are satisfactory. This report therefore not only contains the results of the 1991 sampling programme, but uses them to look at the underlying trends in compliance with the Directive. It also provides up-to-date information on the criteria upon which awards are made to beaches in England and Wales, based partly upon the bathing water quality results. Further details are also given of the steps being taken to attain compliance with the Directive.

Some volatility from year to year in the number of beaches passing or failing the Directive is to be expected, but the NRA is concerned to ensure that a real and sustainable improvement will result from the very extensive capital schemes currently being undertaken. This appears to be happening. The NRA itself also funds research-programmes to improve the basis upon which the quality of bathing waters can be judged, and to explore the means by which improved quality can be attained; the report also therefore refers to these aspects of the NRA's activities.

A handwritten signature in dark ink, reading 'R. J. Pentreath', written over a horizontal line.

Dr R. J. Pentreath
Chief Scientist

ACKNOWLEDGEMENTS

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Thanks are due also to Mr J. Vaughan and Mr J.F. Bonsall of the Department of the Environment, for their approval to reproduce published departmental data relating to UK bathing waters, and to Mr Nigel Tansley-Thomas, Regional Director, East Anglia Region, Tidy Britain Group, for permission to include Blue Flag Campaign and Seaside Award information.

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EXECUTIVE SUMMARY

1 Introduction

Last year the NRA published its first Report on Bathing Water Quality; the present Report is an update of that Report, including the results of the 1991 bathing season. These results indicated a slight decline in the numbers of waters meeting the Bathing Water Directive's standards but that, nevertheless, the underlying trend was one of sustained improvement.

For the 1991 bathing season, 7 new bathing waters were identified in England and Wales giving a total of 414 bathing waters identified for the purposes of the Directive. The NRA will be subject in 1992 to direction by the Secretary of State to sample and test bathing waters that are classified by new UK Regulations; these will be consistent with the legislative requirement for establishing quality objectives for such waters.

The Report also refers to the EC Commission's Report on the "Quality of Bathing Water 1989-1990" that indicates an improvement in the quality of UK bathing waters since 1988, and draws attention to the fact that the UK is again one of only a few Member States of the Community to submit its 1991 bathing water data to the Commission on time.

The NRA continues to carry out a great deal of sampling and analysis of non-identified bathing waters; details can be obtained from the relevant section of the public register maintained by each NRA Region.

2 The 1991 EC Identified Bathing Water Quality Survey

The 1991 data, when assessed in accordance with the Directive, show a slight decline in compliance (75.4%) in England and Wales compared with 1990 (78.1%). It is considered that this was most likely due to the cooler, wetter conditions in 1991, such that the failure of some beaches masked statistically the positive effects resulting from investment schemes aimed at improving bathing water quality at other beaches.

The cooler temperatures will have resulted in a lesser degree of bacterial die-off in the water, whilst wetter weather will have caused more frequent operation of stormwater overflows which have no treatment to reduce bacterial numbers.

Details are presented, on a Region-by-Region basis, on the compliance with the mandatory coliform standards of the Directive with comments relevant to each Regional situation.

3 Trends and Variations in Bathing Water Survey Results

Although the trend of increasing compliance with the Directive in England and Wales over the last 5 years appears to have been halted, the Report indicates that there would have been a greater decline in compliance but for the completion of many capital schemes during 1991.

The Report comments further on the concept of variation in compliance, as detailed in last year's Report which, due to the "pass/fail" basis of assessing compliance, leads to a large amount of volatility in compliance with the Directive between one year and the next. There were 3% more bathing waters passing in both 1990 and 1991 than passing in both 1989 and 1990. This, again, is considered to be due to the completion of capital schemes ensuring that more bathing waters consistently pass the Directive.

The use of the median coliform value from each bathing water during the season was proposed in last year's Report as a more meaningful way of assessing bathing water quality because it gives a stable estimate of trend, is relatively insensitive to changes in sampling rate, and is a good way of comparing water quality from year to year and from country to country. The use of this technique has shown that the steady improvement in bathing water quality over the past 4 years has continued in 1991, even though there was a 2.7% decrease in compliance with the Directive in 1991 compared with 1990.

4 Other Changes Since the 1990 Season

Details are given of the 1992 European Blue Flag Scheme which set out new, more stringent, criteria agreed by the 12 participating countries. The most significant change is that water quality must comply with the Guideline values of the appropriate microbiological parameters of the EC Bathing Water Directive; this is likely to result in a significant reduction of the number of Blue Flags awarded for 1992 throughout the European Community.

Details are given also of The Tidy Britain Group's new "Seaside Award" Scheme for 1992, with its categories for Resort and Rural beaches. To qualify for the award the bathing water must comply with the mandatory standards for the faecal and total coliform parameters of the EC Bathing Water Directive, and the beach must comply with 28 land-based criteria. If the bathing water quality complies with the Directive's more stringent guideline standards for the coliform parameters, and the beach also complies with the same 28 land based criteria, then it will receive the "Premier" Seaside Award.

The Report also includes a section on the subject of disinfection, and sets out how the NRA will control the use of disinfection of sewage effluents as applied in interim discharge schemes and other related discharges that affect receiving waters to which microbiological quality standards are applied. Details are given of the role played by the NRA in national deliberations concerning the control and environmental impact of disinfection processes.

The Report contains an update of the NRA's Research and Development Programme, which includes a planned expenditure of about £1.05 million during the current and next financial year on projects associated with improving bathing water quality.

The implications for the UK of the EC Urban Waste Water Treatment Directive are also considered. The Government is consulting on the criteria that will be used to define "sensitive" and "less sensitive" areas, which will be key factors in deciding the degree of treatment of sewage effluents discharged to coastal waters. It has been estimated that the requirements to deal with coastal discharges will cost £2,200 million (DoE 1991b).

The NRA has published proposals for establishing statutory water quality objectives for all controlled waters. These will provide a mechanism whereby the water quality requirements of relevant EC Directives can be incorporated in overall water quality management plans. The NRA sampling and monitoring programmes of identified bathing waters will provide a valuable input for establishing statutory water quality objectives for these waters.

5. Discussion and Conclusions

The use of the median coliform counts to examine trends in water quality over time has confirmed the general improvement in bathing water quality in England and Wales over the past few years.

The results from the 1991 Survey reinforce the views advanced in the 1990 NRA Report that remedial capital expenditure schemes by the Water Service Plcs are bringing about improvements in bathing water quality in England and Wales; and that the widespread use of the median faecal coliform results to assess bathing water quality should be considered as a meaningful assessment between the bathing water results of all the Member States of the European Community.

1. INTRODUCTION

1.1 1990 REPORT

The National Rivers Authority (NRA) is the "competent authority" in England and Wales under the EC Bathing Water Directive (76/160/EEC). This requires the NRA to sample and analyse bathing waters in accordance with the requirements of the Directive and report the results annually to the Department of the Environment (DoE) and Welsh Office. The DoE uses these data to assess compliance of individual sites and transmits the results annually to the European Commission.

Last year the NRA (NRA 1991a) published its first Report on Bathing Water Quality (Water Quality Series No 3 August 1991).¹ The present Report is an update of the 1990 Report giving the results of the 1991 bathing season.

1.2 DEVELOPMENTS SINCE 1990

In 1990 there were 407 bathing waters identified in England and Wales for the purposes of the Directive. An additional 7 bathing waters were identified for the 1991 bathing season. These are given in Table 1.

Table 1 New Identified Bathing Waters in 1991

Bathing Water	Region	National Grid Reference
Amble Links	Northumbria	NU27600440
Hemsby	Anglian	TG50901740
Caister Point	Anglian	TG53001200
Gorleston Beach	Anglian	TG53200310
West Mersea	Anglian	TM02271203
Sheerness	Southern	TQ92507500
West Kirby	Welsh	SJ21008680

The summary of the results of the survey during 1991 for these new bathing waters are included in the Report to Parliament on Monitoring under the Directive for 1991 (Appendix A).

The Bathing Waters (Classification) Regulations (SI 1597), which came into force in August 1991, reflect the mandatory standards of the Bathing Water Directive and prescribe a system of classifying bathing waters which will be used for establishing quality objectives for such waters under Section 105 of the Water Act 1989 (now consolidated into the Water Resources Act 1991). These Regulations (DoE 1991a) also establish the need to assess the impact of local discharges and ensure that water quality in these areas does not deteriorate. The NRA will be subject to direction by the Secretary of State to sample and test waters that fall within the classification BW1 as set out in the Regulations.

¹Copies of the Report are available from the NRA, price £10 (including post and packing).

The Commission of the European Communities has published a report entitled "Quality of Bathing Water 1989-1990" (CEC 1991). This is the eighth report in the series and covers the 1989 bathing season plus the 1990 data for Belgium, Greece, Luxembourg, the Netherlands, and the United Kingdom, these being the only Member States to submit the required data returns in time for publication. (The UK is again one of only a few Member States of the Community to submit its 1991 bathing water data to the Commission on time.) The CEC report concludes that, for the UK, bathing water quality has improved slightly since 1988, and that the sampling frequency has increased over the years 1989 and 1990.

1.3 - NON-IDENTIFIED BATHING WATER AREAS

The 1990 Report set out in some detail the extensive monitoring carried out by the NRA of non-identified bathing waters; that is, additional to those bathing waters reported to the EC by the DoE. Such monitoring provides valuable data in support of the possible future "identification" of additional bathing waters, and the setting of Statutory Water Quality Objectives under the Water Resources Act 1991. The monitoring of these non-identified bathing waters was continued during 1991; details can be obtained from the relevant section of the public register maintained by each NRA Region (see Appendix B for addresses).

2. THE 1991 EC IDENTIFIED BATHING WATER QUALITY SURVEY

2.1 Sampling and Analysis

The 1991 Survey for England and Wales was based on a minimum of 20 samples taken at weekly intervals over the period 1 May to 30 September. All samples were taken at predetermined points off the beach of the identified bathing waters, where the daily average density of bathers is at its highest, and 30 centimetres below the surface - except in the case of samples used for testing for mineral oils, which were taken at the water's surface.

The results of the analyses are given in the 1991 Report to Parliament (Appendix A); wherever possible, at least 2 samples were analysed for salmonellae and enteroviruses.

2.2 Survey Results: Compliance with Directive

During the 1991 bathing season there were a total of 414 identified bathing waters in England and Wales. The number of bathing waters complying with the Directive, as determined by the DoE, was 312; that is to say, 75.4%. This is a reduction of 2.7% compared with the results of the 1990 Survey. Table 2 gives details of the numbers and percentages of bathing waters complying with the Directive in 1991, both for England and Wales, and on a Region by Region basis. The change in percentage compliance between 1990 and 1991 is also given.

Table 2 1991 EC Identified Bathing Waters — Faecal Coliform Results

NRA Region	No. of Bathing Waters	Complying		Non-Complying		% Change relative to 1990
		No.	%	No.	%	
Anglian	33	29	87.9	4	12.1	-5.2
Northumbria	33	21	63.6	12	36.4	-2.0
North West	33	10	30.3	23	69.7	0.0
Southern	67	45	67.2	22	32.8	-5.5
South West	133	105	78.9	28	21.1	-9.8
Thames	3	2	66.7	1	33.3	-33.3
Welsh	51	45	88.2	6	11.8	+18.2
Wessex	39	36	92.3	3	7.7	-7.7
Yorkshire	22	19	86.4	3	13.6	+9.1
TOTAL	414	312	75.4	102	24.6	-2.7

The slight decline in compliance in England and Wales in 1991, compared with 1990, is most likely due to the cooler, wetter conditions in 1991. The cooler temperatures will have resulted in a lesser degree of bacterial die-off in the water, whilst the wetter weather will have resulted in an increase in the frequency of operation of stormwater overflows, which generally do not have any treatment to reduce bacterial numbers.

The Water Service Plcs are in the middle of a multi-million pound investment programme aimed at improving bathing water quality. Several capital schemes were finished during 1991 and will have improved bathing water quality in their locality; however the cooler, wetter conditions in 1991 may have masked the positive effects of these schemes on the national scale, resulting in the overall drop in compliance.

2.3 Region by Region Analysis 1991

Maps are included for each NRA Region showing their identified bathing waters, and whether they complied (○), or did not comply (●), with the relevant parameters of the Directive for the 1991 bathing season.

Anglian Region

The Anglian Region had 33 identified bathing waters in 1991, which included 4 newly identified bathing waters (Hemsby, Caister Point, Gorleston Beach and West Mersea). Of the 33 identified bathing waters, 4 failed the Directive mandatory (I) coliform standards. Thus the percentage compliance for the Region in 1991 was 87.9%, a decrease of 5.2% relative to 1990.

This decrease can be attributed to a combination of the wetter weather conditions in 1991 compared with 1990, and the statistical basis of compliance with the Directive, as discussed in detail in last year's Report (NRA 1991a). Figure 1 indicates the compliance of individual bathing waters within the Region in 1991.

Anglian Water Services Plc has capital schemes either planned or in progress which will improve bathing water quality at the 4 failing sites, the latest of which will be finished by 1997.

In addition to the monitoring of identified bathing waters, 17 non-identified bathing waters were monitored in the Anglian Region during the 1991 bathing season.

North West Region

The North West Region is an area of high population and industrial density, of which a significant proportion is concentrated along the coast. This is reflected, perhaps not surprisingly, in the proportion of bathing waters in a state of non-compliance.

A total of 23 bathing waters failed to meet the coliform requirements of the Directive in 1991, out of a possible 33. Thus the percentage of bathing waters complying with the Directive was 30.3%, which represents no overall change in the percentage complying compared with 1990. Figure 2 shows the state of compliance for individual bathing waters for 1991.

Several remedial works are being carried out, or are under consideration, by North West Water Services Plc which will affect identified bathing waters currently failing to comply with the Directive. Details of these can be found in last year's Report (NRA 1991a), although the following updates should be noted:

- Bardsea Scheme - applications have been approved; and
- Fylde Coast Scheme - planning and consent applications have been submitted, and an application for interim disinfection by chlorination has been submitted to the NRA.

In addition to monitoring identified bathing waters, 15 non-identified bathing waters were monitored during the 1991 season.

Northumbria Region

In 1991 the Northumbria Region had 33 identified bathing waters, of which 21, or 63.6%, complied with the Directive's mandatory coliform standards. This was a 2% fall in compliance

compared with 1990. Figure 3 shows the individual state of compliance for the identified bathing waters in the Northumbria Region in 1991. An additional bathing water was identified for the 1991 season at Amble Links.

Northumbrian Water Group Plc has several capital schemes, either planned or in progress, which will allow compliance at bathing waters which currently fail the Directive's coliform standards; schemes are also to be carried out to ensure compliance at bathing waters which on occasions do not meet the Directive's standards. Details of the above schemes can be found in last year's Report (NRA 1991a). There are, however, other bathing waters where non-compliance is more difficult to achieve (South Shields - which is thought to be affected by the Tyne efflux) or not practically possible to achieve (Marsden - where non-compliance is thought to be due to the influence of birds which nest in vast numbers on adjacent cliffs and rocks).

In addition to the monitoring of identified bathing waters, the Region carried out monitoring at a number of non-identified bathing waters during the 1991 bathing season.

Severn Trent Region

Severn Trent Region has no marine waters, and no inland bathing waters have been identified by the DoE under the Bathing Water Directive.

Southern Region

In 1991 there were 67 identified bathing waters in the Southern Region. This was an increase of one from the number in 1990, the new bathing water being Sheerness. Forty five bathing waters complied with the mandatory coliform standards of the Directive in 1991, which is equivalent to 67.2%. This was a decrease of 5.5% compared with 1990 and is largely a result of the poorer summer weather conditions experienced in 1991. Figure 4 shows the compliance or non-compliance of individual bathing waters for the 1991 bathing season.

The number of non-identified bathing waters increased in 1991, with the following bathing waters being monitored in addition to those listed in last year's Report:

Solent Breezes	Hampshire
Felpham	Sussex
Eastbourne (Redoubt)	Sussex
Bulverhythe	Sussex
Hastings (Fairlight Glen)	Sussex
Westbrook Bay	Kent
Walpole Bay	Kent
Spring Vale	Isle of Wight
Shanklin (Welcome Beach)	Isle of Wight

Southern Water Services Plc has a large number of remedial schemes which are planned or in progress to ensure improvements to bathing water quality at bathing waters which currently - or are in danger of - failing the Directive standards. Details of these schemes can be found in last year's Report.

South West Region

South West Region has by far the largest number of bathing waters of any NRA Region; 133 identified bathing waters for the 1991 bathing season of which 105 complied with the Directive's mandatory coliform standards. The percentage compliance was thus 78.9% which was a fall of 9.8% when compared with 1990.

The individual compliance results for South West's bathing waters in 1991 are shown in Figure 5.

South West Water Services Plc has a very large investment programme to improve bathing water quality at the Region's non-complying bathing waters. All schemes should be completed by 1997. Further details of individual schemes can be found in last year's Report.

A large amount of monitoring of non-identified bathing waters is carried out in South West Region using a 3 year rolling programme. A list of bathing waters included in this programme can also be found in last year's Report.

Thames Region

Thames Region has only 3 identified bathing waters, although there is some monitoring of non-identified tidal bathing waters, and much monitoring of inland waters (NRA 1991).

In 1991, 1 out of the 3 identified bathing waters failed the mandatory coliform standards of the Directive, giving a 66.7% figure for compliance compared with 100% in 1990.

The capital scheme underway at Southend will, when completed, lead to an improvement in the compliance of the identified bathing waters in Thames Region.

Thames bathing waters are shown in Figure 1 (along with those of Anglian Region), indicating whether they passed or failed the Directive in 1991.

Welsh Region (Rhanbarth Cymru)

The addition of West Kirby (which is in England) as an identified bathing water for the 1991 bathing season meant that the Welsh Region now has 51 identified bathing waters. The position of these bathing waters, and whether they complied or not with the Directive in 1991, is shown in Figure 6.

Regionally, 45 out of 51 (88.2%) bathing waters complied with the mandatory coliform standards of the Directive in 1991, which is an 18.2% improvement over 1990.

A total of 142 non-identified bathing waters were also monitored during 1991, with assistance with sampling being provided by some Local Authorities. Further details of the monitoring of non-identified bathing waters in the Region can be found in last year's Report.

Welsh Water Plc (Dwr Cymru cyf) has drawn up an investment programme designed to achieve compliance at those identified bathing waters currently failing, or at risk of failing, the Directive. Details of schemes included in the programme can be found in last year's Report. It should be noted that the schemes at Trearddur Bay and Irongate (Porthcawl) were both completed during 1991.

Wessex Region

There were 39 identified bathing waters in the Wessex Region in 1991, the same number as in 1990; however, in 1991, 3 of the bathing waters failed. This gave a percentage compliance of 92.3%, a fall of 7.7% from the 100% compliance of 1990. All 3 of the non-complying bathing waters were on the north coast of the Wessex Region.

The reason for the increase in non-compliance is likely to be a combination of the cooler, wetter weather in 1991 compared with 1990, and variation in the efficacy of the disinfection carried out at 2 of the 3 non-complying bathing waters.

Figure 7 shows the position and state of compliance for identified bathing waters in the Wessex Region in 1991.

Monitoring of non-identified bathing waters is carried out in the Wessex Region; details of the bathing water areas monitored are included in last year's Report.

Yorkshire Region

There were 22 identified bathing waters in the Yorkshire Region in 1991, with no non-identified bathing waters being monitored because it was considered that all bathing waters that it is practical to monitor have been identified.

Compliance with the mandatory coliform standards of the Directive was achieved at 19 of the 22 bathing waters in 1991, giving a percentage compliance of 86.4%. This is an improvement of 9.1% on 1990 and is principally due to marked improvements in the quality of 2 bathing waters: Skipsea, where previously inadequate sewerage problems have been resolved, and Scarborough North Bay, following the commissioning of the new long sea outfall.

The position and state of compliance of the identified bathing waters in the Yorkshire Region for 1991 is shown in Figure 8.

The NRA is discussing with Yorkshire Water Services Plc the improvements needed at bathing waters that have failed or are in danger of failing the Directive, and a timetable is being drawn up for the achievement of compliance with the Bathing Water Directive and, in the future, with the Urban Waste Water Treatment Directive. Certain details of this programme were discussed in last year's Report.

FIGURE 1

Bathing Water

- 1 Cleethorpes
- 2 Mablethorpe Town
- 3 Sutton-on-Sea
- 4 Moggs Eye
- 5 Anderby Creek
- 6 Chapel St Leonards
- 7 Ingoldmells South
- 8 Skegness
- 9 Heacham
- 10 Hunstanton Beach
- 11 Wells
- 12 Sheringham
- 13 Cromer
- 14 Mundesley
- 15 Hemsby
- 16 Caister Point
- 17 Great Yarmouth North
- 18 Great Yarmouth Pier

Bathing Water

- 19 Great Yarmouth South
- 20 Gorleston Beach
- 21 Lowestoft North
- 22 Lowestoft South
- 23 Southwold The Denes
- 24 Felixstowe North
- 25 Felixstowe South
- 26 Dovercourt
- 27 Walton
- 28 Frinton
- 29 Holland
- 30 Clacton
- 31 Jaywick
- 32 Brightlingsea
- 33 West Mersea
- 34 Shoebury East
- 35 Southend Thorpe Bay
- 36 Southend Westcliff Bay

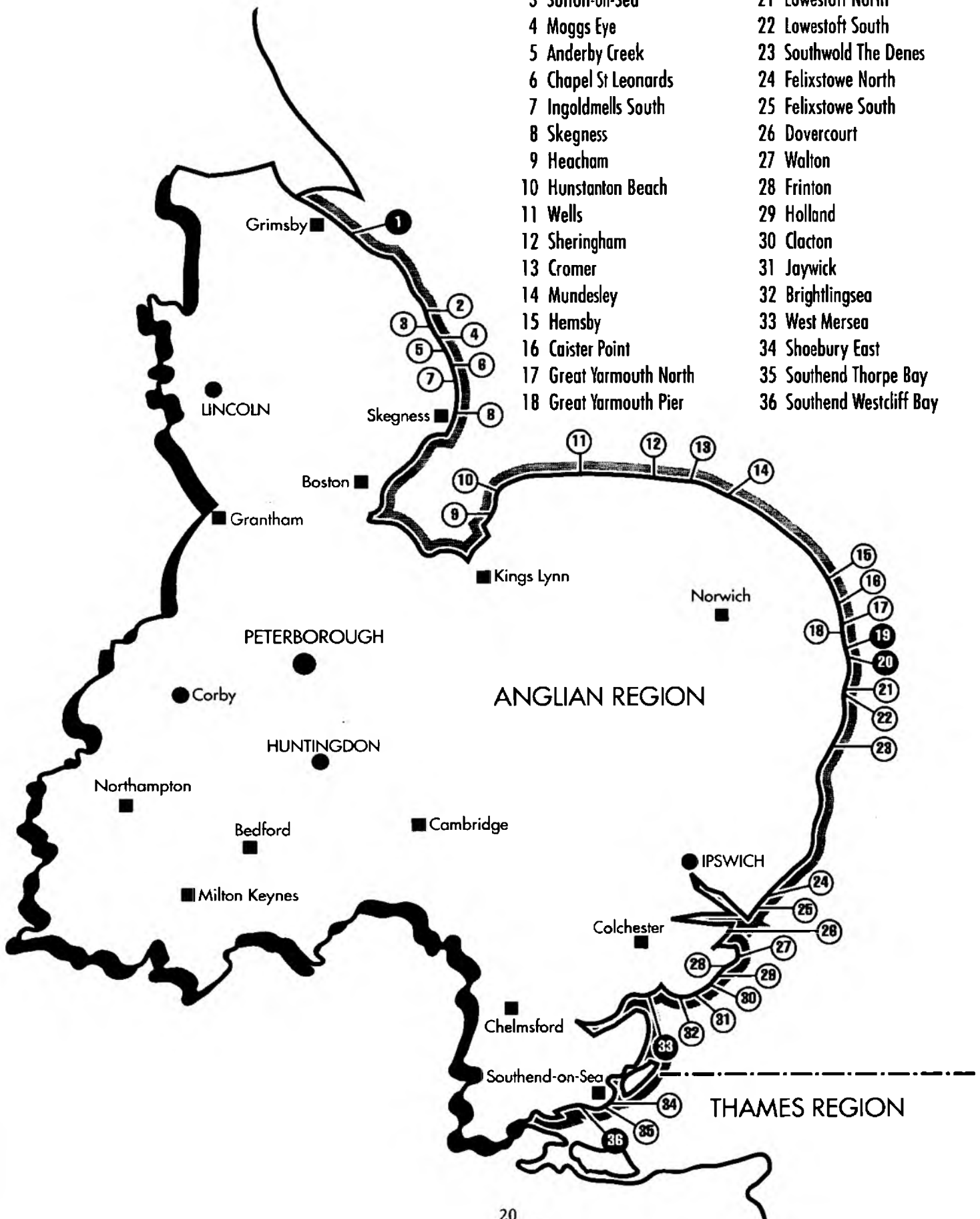
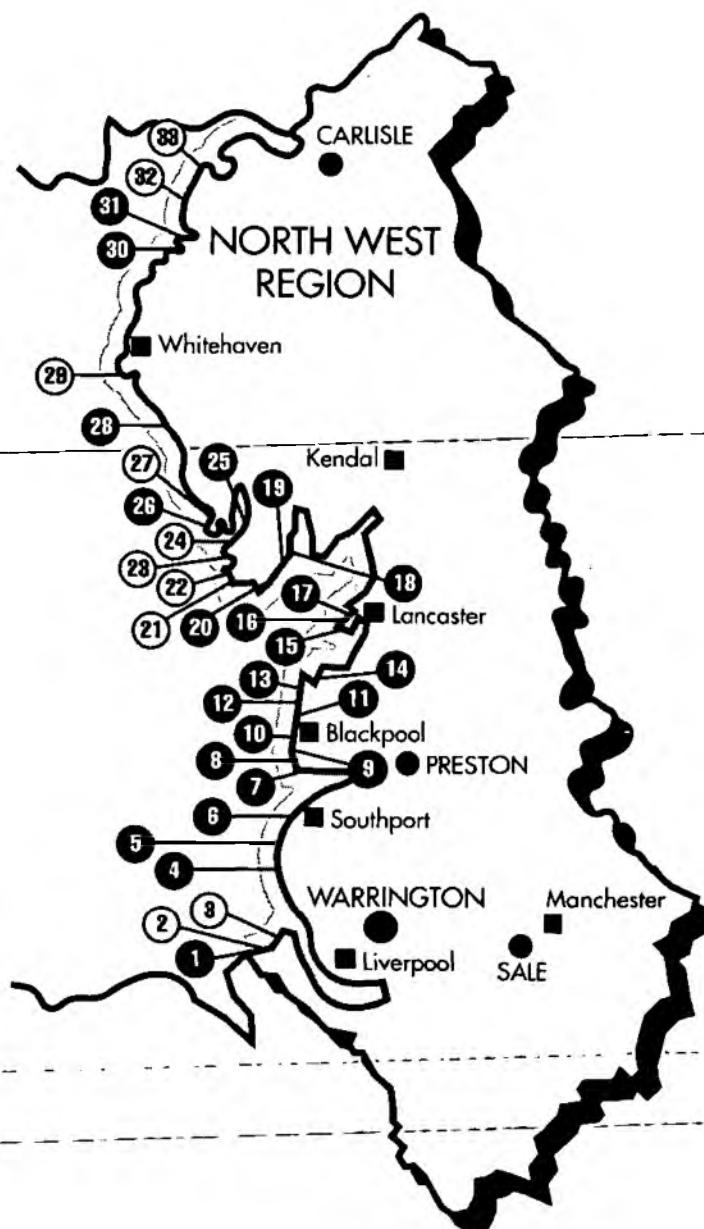


FIGURE 2

Bathing Water

- 1 Meols
- 2 Moreton
- 3 New Brighton
- 4 Formby
- 5 Ainsdale
- 6 Southport
- 7 St Annes
- 8 St Annes North
- 9 Blackpool South
- 10 Blackpool Central
- 11 Blackpool North
- 12 Bispham
- 13 Cleveleys
- 14 Fleetwood
- 15 Heysham – Half Moon Bay
- 16 Morecambe South
- 17 Morecambe North
- 18 Bardsea
- 19 Aldingham
- 20 Newbiggin
- 21 Walney Biggar Bank
- 22 Walney Sandy Gap
- 23 Walney West Shore
- 24 Roan Head
- 25 Askam-in-Furness
- 26 Haverigg
- 27 Silecroft
- 28 Seascale
- 29 St Bees
- 30 Allonby South
- 31 Allonby
- 32 Silloth
- 33 Skinburness



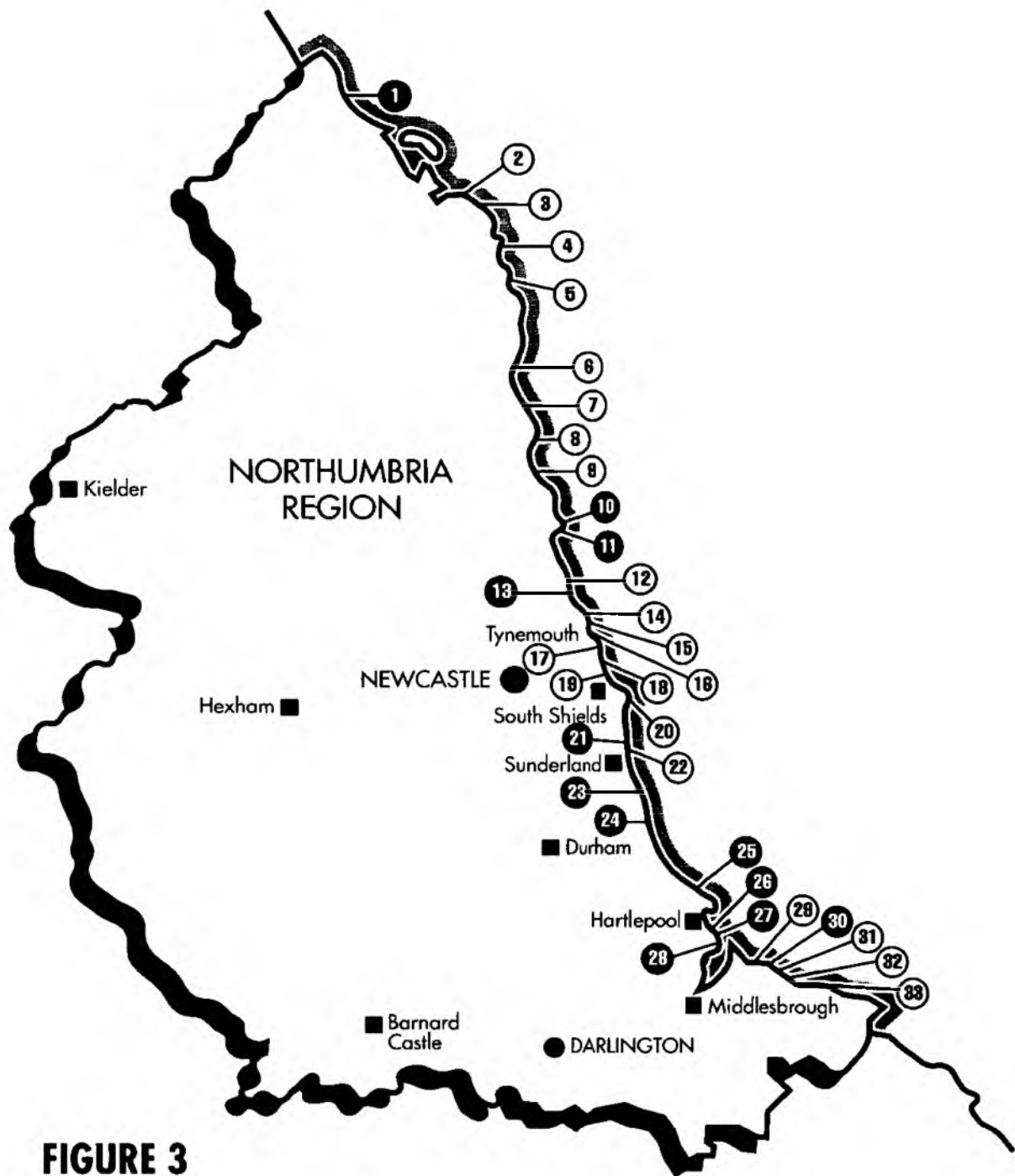


FIGURE 3

Bathing Water		
1 Spittal	12 Blyth South Beach	23 Seaham Beach
2 Bamburgh Castle	13 Seaton Sluice	24 Seaham Remand Home
3 Seahouses North	14 Whitley Bay	25 Crimdon Park
4 Beadnell	15 Tynemouth Cullercoats	26 Seaton Carew North
5 Low Newton	16 Tynemouth Long Sands North	27 Seaton Carew Centre
6 Alnmouth	17 Tynemouth Long Sands South	28 Seaton Carew North Gare
7 Warkmouth	18 Tynemouth King Edward's Bay	29 Redcar Coatham
8 Amble Links	19 South Shields	30 Redcar LB Station
9 Druridge Bay	20 Marsden	31 Redcar Granville
10 Newbiggin North	21 Whitburn North	32 Redcar Stray
11 Newbiggin South	22 Roker/Whitburn South	33 Saltburn

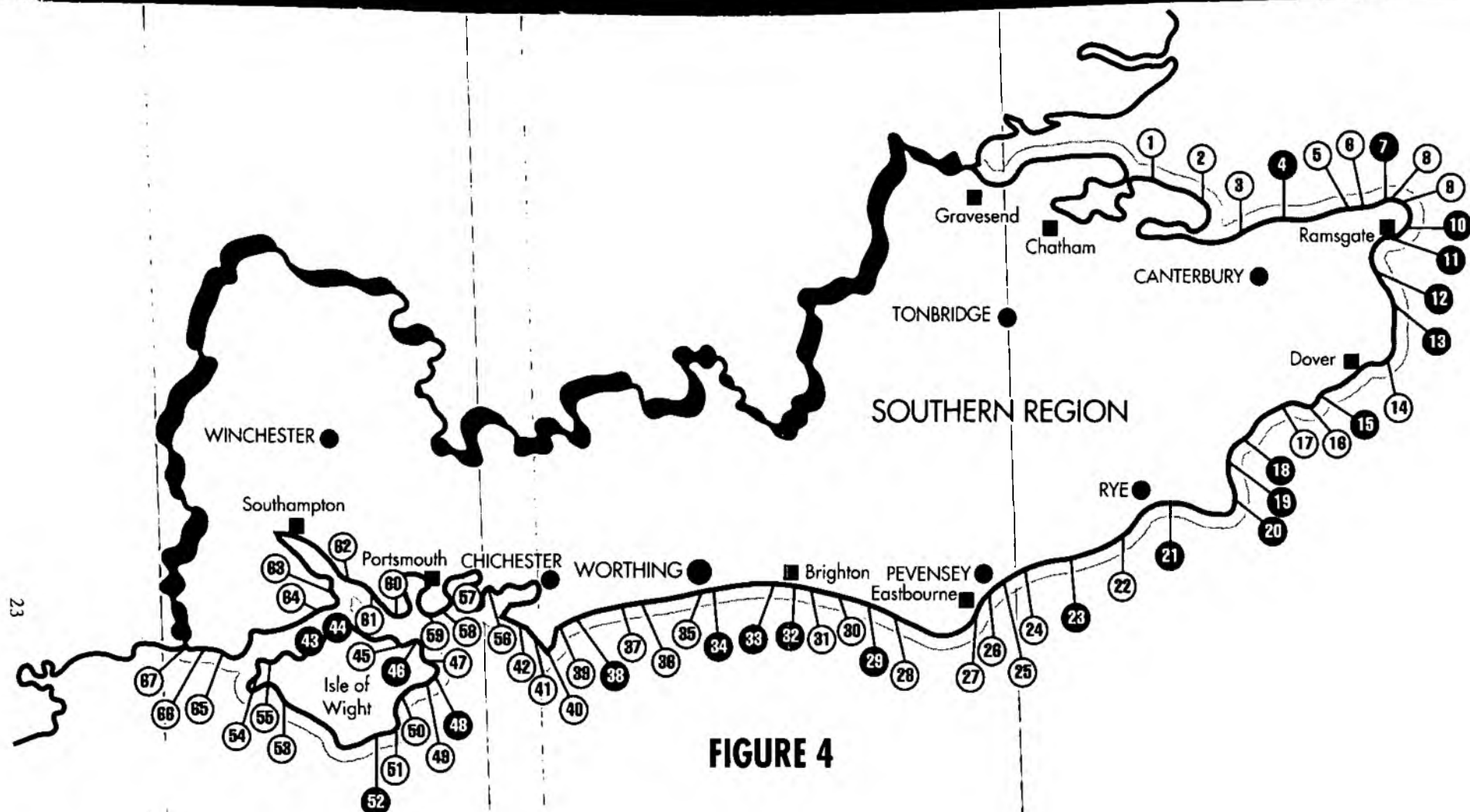


FIGURE 4

Bathing Water	Bathing Water	Bathing Water	Bathing Water	Bathing Water	Bathing Water	Bathing Water
1 Sheerness	11 Ramsgate	21 Camber	31 Brighton	41 Bracklesham Bay	51 Shanklin	61 Lee-on-Solent
2 Leysdown	12 Sandwich Bay	22 Winchelsea	32 Hove	42 West Wittering	52 Ventnor	62 Hillhead
3 West Beach	13 Deal Castle	23 Hastings	33 Southwick	43 Gurnard	53 Compton Bay	63 Calshot
4 Herne Bay	14 St Margaret's Bay	24 Bexhill	34 South Lancing	44 Cowes West	54 Totland Bay	64 Lepe
5 Minnis Bay	15 Folkestone	25 Norman's Bay	35 Worthing	45 Ryde East	55 Colwell Bay	65 Milford-on-Sea
6 St Mildred's Bay	16 Sandgate	26 Pevensey Bay	36 Littlehampton	46 Seagrove	56 West of Eastoke	66 Christchurch Bay
7 Margate The Bay	17 Hythe	27 Eastbourne	37 Middleton-on-Sea	47 St Helens	57 West Hayling	67 Highcliffe
8 Margate Fulsham Rock	18 Dymchurch	28 Seaford	38 Bognor Regis	48 Bembridge	58 Eastney	
9 Joss Bay	19 St Mary's Bay	29 Newhaven	39 Pagham	49 Whitecliff Bay	59 Southsea	
10 Broadstairs	20 Littlestone	30 Saltdean	40 Selsey	50 Sandown	60 Stokes Bay	

FIGURE 5

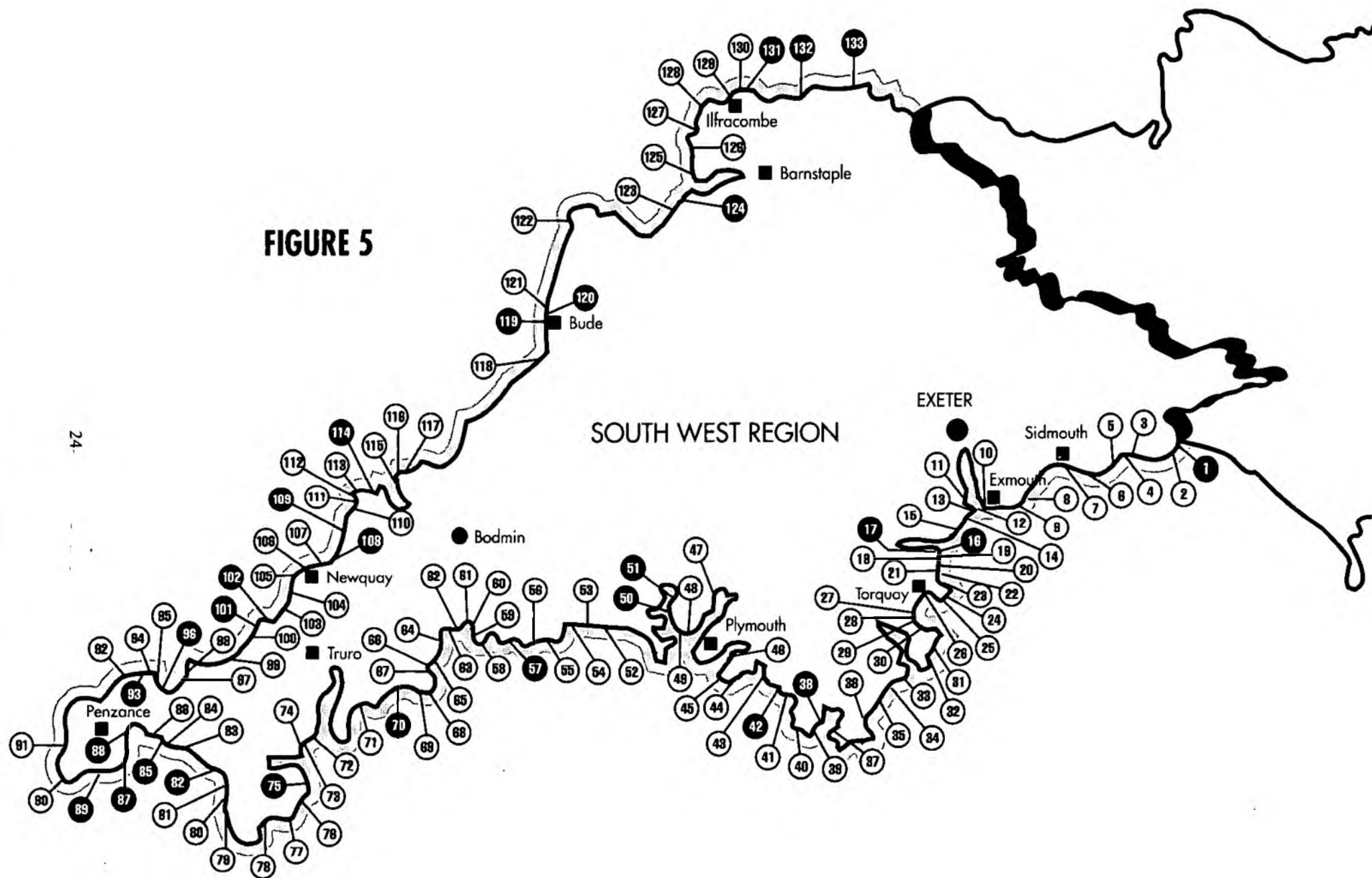


FIGURE 5

Bathing Water

- 1 Lyme Regis Church Beach
- 2 Lyme Regis Cobb
- 3 Seaton (Devon)
- 4 Beer
- 5 Sidmouth Town
- 6 Sidmouth Jacob's Ladder
- 7 Ladram Bay
- 8 Budleigh Salterton
- 9 Sandy Bay
- 10 Exmouth
- 11 Dawlish Warren
- 12 Dawlish Town
- 13 Dawlish Coryton Cove
- 14 Teignmouth Holcombe
- 15 Teignmouth Town
- 16 Shaldon
- 17 Ness Cove
- 18 Maidencombe
- 19 Watcombe
- 20 Oddicombe
- 21 Babbacombe
- 22 Redgate
- 23 Meadfoot
- 24 Beacon Cove
- 25 Torre Abbey
- 26 Hollicombe
- 27 Goodrington

Bathing Water

- 28 Paignton Paignton Sands
- 29 Broadsands
- 30 Paignton Preston Sands
- 31 Shoalstone
- 32 St Mary's Bay
- 33 Dartmouth Castle and Sugary Cove
- 34 Blackpool Sands
- 35 Slapton Sands Monument
- 36 Slapton Sands Torcross
- 37 Mill Bay
- 38 Salcombe North Sands
- 39 Salcombe South Sands
- 40 Hope Cove
- 41 Thurlestone South
- 42 Thurlestone North
- 43 Bantham
- 44 Bigbury-on-Sea South
- 45 Bigbury-on-Sea North
- 46 Challaborough
- 47 Mothecombe
- 48 Wembury
- 49 Bovisand
- 50 Plymouth Hoe East
- 51 Plymouth Hoe West
- 52 Portwrinkle
- 53 Downderry

Bathing Water

- 54 Seaton (Cornwall)
- 55 Millendreath
- 56 East Looe
- 57 Readymoney
- 58 Polkerris
- 59 Par
- 60 Crinnis Golf Links
- 61 Crinnis Leisure Centre
- 62 Charlestown
- 63 Duporth
- 64 Porthpean
- 65 Pentewan
- 66 Polstreath
- 67 Port Mellon
- 68 Gorran Haven Little Perhaver
- 69 Gorran Haven (Vault)
- 70 Porthluney
- 71 Pendower
- 72 Gyllygvase
- 73 Swanpool
- 74 Maen Porth
- 75 Porthallow
- 76 Porthoustock
- 77 Coverack
- 78 Kennack Sands
- 79 Pollurian Cove
- 80 Poldhu Cove

Bathing Water

- 81 Gunwalloe Cove
- 82 Porthleven West
- 83 Praa Sands East
- 84 Praa Sands West
- 85 Perran Sands
- 86 Mounts Bay Little Holgus
- 87 Mounts Bay Heliport
- 88 Mounts Bay Penzance
- 89 Mounts Bay Wherry Town
- 90 Porthcurno
- 91 Sennen
- 92 Porthmeor
- 93 Porth Gwidden
- 94 Porthminster
- 95 Carbis Bay Station Beach
- 96 Carbis Bay Porth Kidney Sands
- 97 The Towans (Hayle)
- 98 The Towans (Godrevy)
- 99 Portreath
- 100 Porthtowan
- 101 Trevaunance Cove
- 102 Perranporth Village End
- 103 Perranporth Penhale Sands
- 104 Holywell Bay
- 105 Crantock
- 106 Fistral

Bathing Water

- 107 Towan
- 108 Watergate
- 109 Mawgan Porth
- 110 Treyarnon Bay
- 111 Constantine Bay
- 112 Mother Ivey's Bay
- 113 Harlyn Bay
- 114 Trevone Bay
- 115 Rock
- 116 Daymer Bay
- 117 Polzeath
- 118 Widemouth Sand
- 119 Bude Summerleaze
- 120 Bude Crooklets
- 121 Bude Sandy Mouth
- 122 Harland Quay
- 123 Westward Ho!
- 124 Instow
- 125 Saunton Sands
- 126 Croyde Bay
- 127 Woolacombe Putsborough
- 128 Woolacombe Village
- 129 Ilfracombe Tunnels Beach
- 130 Ilfracombe Capstone
- 131 Ilfracombe Hele
- 132 Combe Martin
- 133 Lynmouth

FIGURE 6

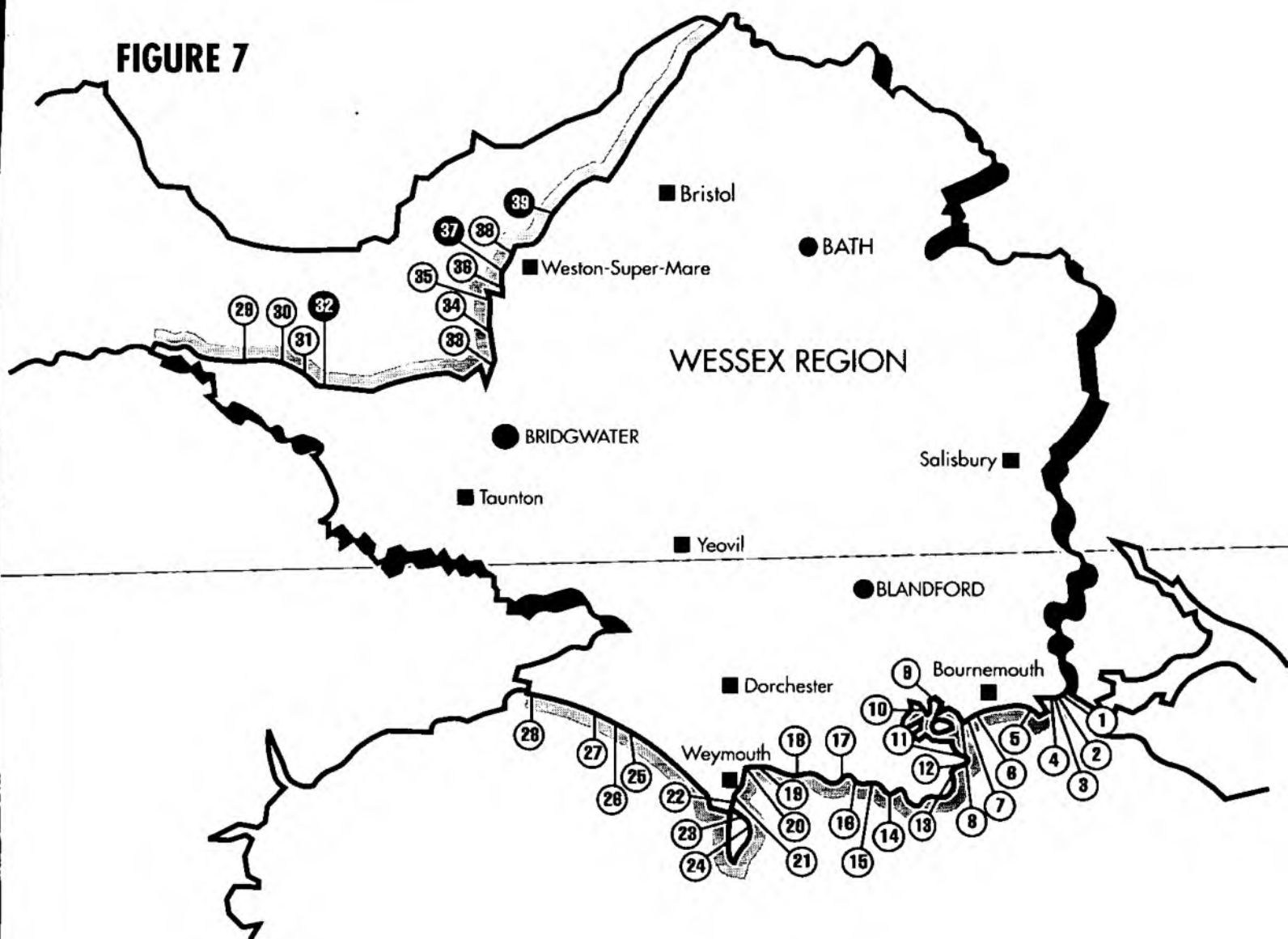


- Bathing Water**
- 19 Amroth
 - 20 Saundersfoot
 - 21 Tenby North
 - 22 Tenby South
 - 23 Broadhaven
 - 24 Newgale
 - 25 Whitesands
 - 26 Newport Sands
 - 27 Traeth Gwyn New Quay
 - 28 Aberystwyth South
 - 29 Aberystwyth North

- Bathing Water**
- 30 Borth
 - 31 Aberdyfi
 - 32 Tywyn
 - 33 Fairbourne
 - 34 Barmouth
 - 35 Llandanwg
 - 36 Harlech
 - 37 Morfa Bychan
 - 38 Criccieth
 - 39 Pwllheli
 - 40 Abersoch

- Bathing Water**
- 41 Morfa Dinlle
 - 42 Rhosneigr
 - 43 Trearddur Bay
 - 44 Benllech
 - 45 Llandudno West Shore
 - 46 Llandudno North Shore
 - 47 Colwyn Bay
 - 48 Kimmel Bay (Sandy Cove)
 - 49 Rhyl
 - 50 Prestatyn
 - 51 West Kirby

FIGURE 7



Bathing Water

- 1 Christchurch Highcliffe Castle
- 2 Christchurch Friar's Cliff
- 3 Christchurch Avon Beach
- 4 Christchurch Mudeford Sandbank East
- 5 Bournemouth Hengistbury East
- 6 Bournemouth Pier
- 7 Poole Shore Road Sandbanks
- 8 Poole Harbour Sandbanks
- 9 Poole Harbour Lake
- 10 Poole Harbour Rockley Sands
- 11 Shell Bay North
- 12 Studland Knoll House
- 13 Swanage Central

Bathing Water

- 14 Kimmeridge Bay
- 15 Lulworth Cove
- 16 Durdle Door East
- 17 Durdle Door West
- 18 Ringstead Bay
- 19 Bowleaze Cove
- 20 Church Ope Cove
- 21 Weymouth Lodmoor
- 22 Weymouth Central
- 23 Portland Harbour Sandsfoot Castle
- 24 Portland Harbour Castle Cove
- 25 West Bay (West)
- 26 Eypemouth

Bathing Water

- 27 Seatown
- 28 Charmouth West
- 29 Porlock Weir
- 30 Minehead Terminus
- 31 Dunster North West
- 32 Blue Anchor West
- 33 Burnham Jetty
- 34 Berrow North of Unity Farm
- 35 Brean
- 36 Weston-super-Mare Uphill Slipway
- 37 Weston-super-Mare Grand Pier
- 38 Weston-super-Mare Sand Bay
- 39 Clevedon Swimming Pool

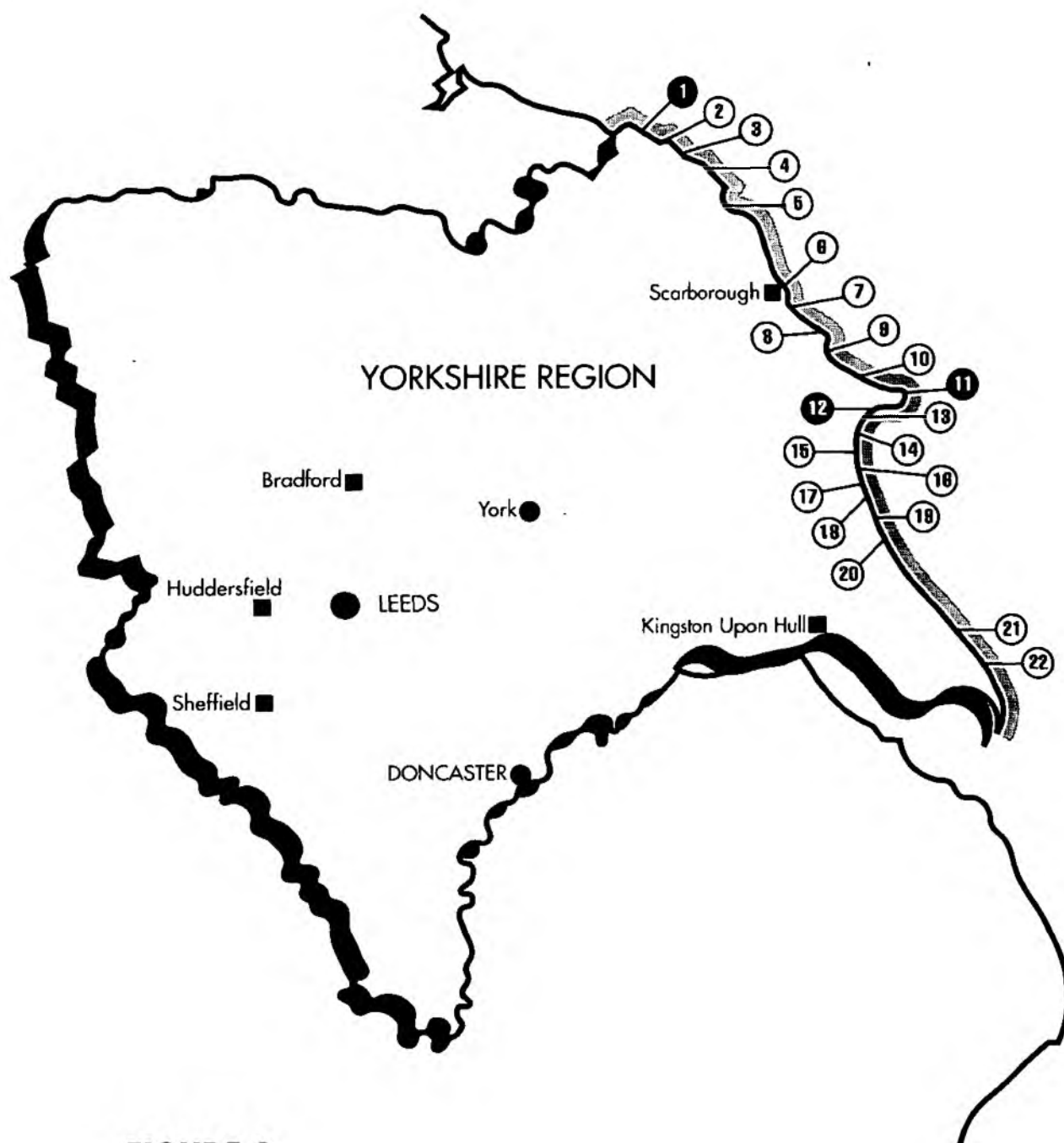


FIGURE 8

Bathing Water

- 1 Staithe
- 2 Runswick Bay
- 3 Sandsend
- 4 Whitby
- 5 Robin Hood's Bay
- 6 Scarborough North Bay
- 7 Scarborough South Bay
- 8 Cayton Bay
- 9 Filey
- 10 Reighton
- 11 Flamborough North Landing

Bathing Water

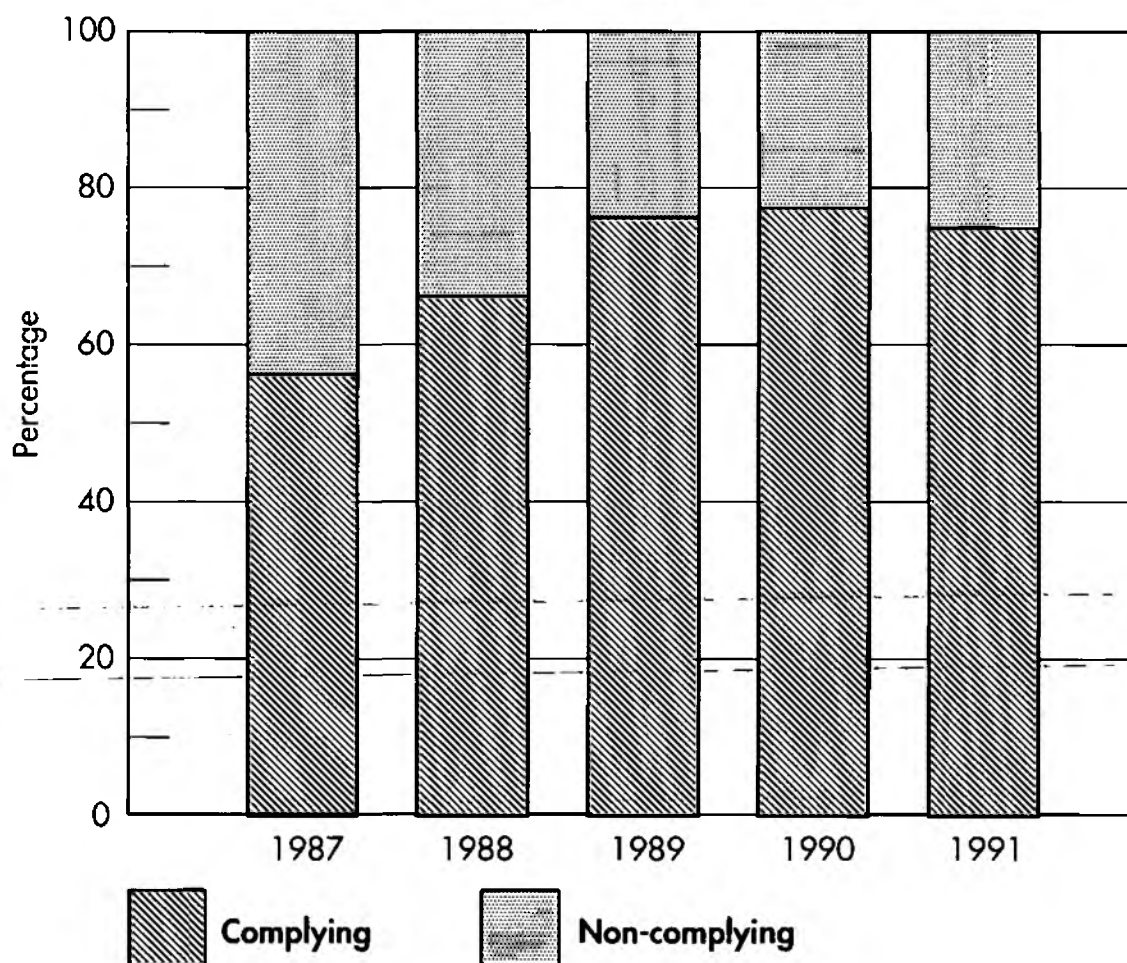
- 12 Flamborough South Landing
- 13 Bridlington North Beach
- 14 Bridlington South Beach
- 15 Wiltshire
- 16 Fraithorpe
- 17 Earls Dyke
- 18 Barmston
- 19 Skipsea
- 20 Hornsea
- 21 Tunstall
- 22 Withernsea

3. TRENDS AND VARIATIONS IN BATHING WATER SURVEY RESULTS

3.1 Trend in Compliance 1987 to 1991

Superficially, the trend of increasing compliance with the Directive in England and Wales over the last 5 years would appear to have halted in 1991 (Figure 9). There was a steady increase from 56% in 1987 to 76% in 1989, and 78% in 1990. The latter 2 years were ones of exceptionally warm and dry conditions, with the consequent increase in bacterial "die-off" and decrease in the operation of stormwater overflows. In 1991 there was a 2.7% reduction in compliance compared with 1990; this may have been due to the cooler, wetter conditions in the summer of 1991 when compared with 1990.

Figure 9 Percentage of Compliance & Non-Compliance in England and Wales, 1987-1991.



It is not possible to measure directly the extent to which the completion of capital schemes during 1991 prevented the percentage compliance in England and Wales from possibly declining even further, but it is certainly possible that completed capital schemes were responsible for ensuring that compliance stayed roughly the same in 1991 as in 1990, despite the less favourable weather conditions in the former year.

3.2 Variation in Compliance

The concept of variation in compliance was addressed more fully in last year's Report. In essence, a combination of the natural variability in bacterial number over time (and hence the variability of data collected over a bathing season), and the definition of compliance used in the Directive (which assesses compliance on a "pass/fail" basis) leads to a large amount of volatility in compliance with the Directive between one year and the next. Thus a significant number of bathing waters may be of a quality which places them on the borderline between compliance and non-compliance; one may fail one year and pass the next, whilst another may pass one year and fail the next, through no other reason than the laws of chance.

It follows that, by only looking at net change in compliance between years, this volatility will be missed. Tables 3 and 4 detail this volatility when comparing compliance between the 1989 and 1990, and 1990 and 1991 bathing seasons respectively.

Table 3 Analysis of Changes in Compliance Between 1989 & 1990 (%)

	Pass 1990	Fail 1990
Pass 1989	67.25	8.50
Fail 1989	10.75	13.50

Table 4 Analysis of Changes in Compliance Between 1990 & 1991 (%)

	Pass 1991	Fail 1991
Pass 1990	70.25	9.25
Fail 1990	6.75	15.50
[The percentages in the table add up to > 100 due to the increase in bathing waters between 1990 and 1991.]		

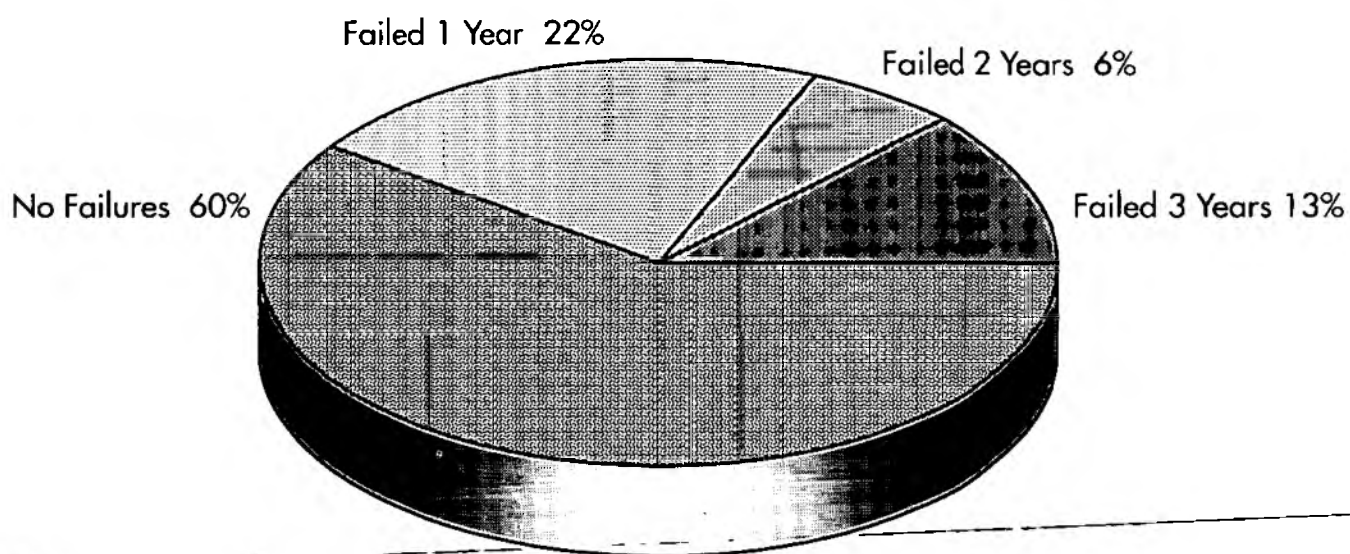
Between 1989 and 1990 there was a 2% net increase in compliance; however, when this is examined, it is seen that about 67% pass both years, whilst 13% failed both years. The 2% improvement in compliance is made up of 11% of bathing waters moving from a fail to a pass, minus 9% of bathing waters moving from a pass in 1989 to a fail in 1990.

Looking at the 1991 compliance figures, in comparison with 1990, the approximately 3% decrease in compliance between the years is made up of 6.75% of bathing waters passing in 1991 which failed in 1990, compared with 9.25% of bathing waters failing in 1991 which had passed the previous year.

Of interest is the fact that there are 3% more bathing waters consistently passing in consecutive years. In accounting for this increase, the contribution of completed capital schemes to a bathing water consistently passing the Directive should not be ruled out. Thus as more capital schemes are finished then more bathing waters should *consistently* pass the Directive.

Figure 10 shows the volatility in compliance over the last 3 years (1989 to 1991), by displaying the number of bathing waters that have failed the Directive for 3, 2, 1 or none of these years. The number of bathing waters failing none of the last 3 years is 60%, whilst the number failing all 3 years is 12.75%. However, 27.25% of bathing waters fail for 1 or 2 of the 3 years; in other words, they switch between compliance and non-compliance. Whether these bathing waters are really of a quality that is below that laid down in the Directive, or whether they in fact are failing due to the volatility of the Directive's "pass/fail" method of assessing compliance, is not clear.

Figure 10 Comparison of Bathing Water Failures 1989-1991



3.3 Bathing Water Quality Assessed Using Median Coliform Values

The use of the median faecal coliform value from each bathing water during the season was first discussed in last year's Report (NRA 1991a). It is one way of overcoming the statistical drawbacks in the Directive's "pass/fail" method of assessing compliance and, by inference, bathing water quality.

Three main advantages in using the median faecal coliform value should be noted:

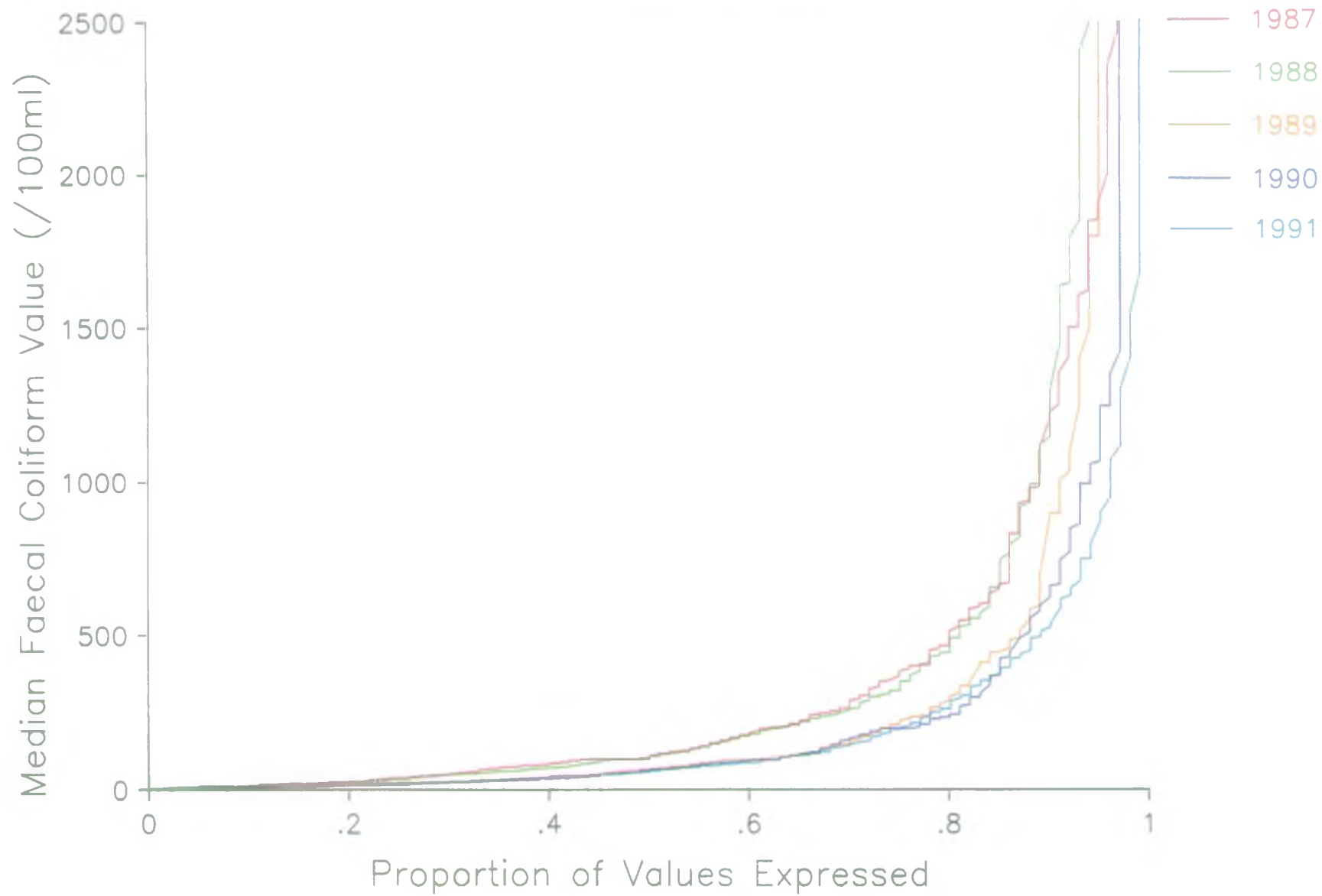
- it offers a stable estimate of trend;
- it is relatively insensitive to changes in sampling rate; and thus
- it is a good way of comparing bathing water quality between countries.

Figure 11 is a graph showing the ranked median faecal coliform values for each of the last 5 years (1987 to 1991 inclusive). The further to the right of the graph a particular year's plot is, then the better the bathing water quality that year. The graph shows that after a decrease in bathing water quality between the 1987 and 1988 bathing seasons, there has been a consistent, steady improvement in bathing water quality in 1989, 1990 and 1991.

In 1987 approximately 90% of bathing waters had a median of less than 1,250 faecal coliforms per 100ml. In 1990 this had risen to about 95%, and in 1991 it was about 97%. Thus the steady improvement in bathing water quality as assessed by median faecal coliform values over the last 4 years has continued in 1991, even though there was a 2.7% decrease in compliance with the Directive in 1991 compared with 1990.

In the previous NRA Report, the point was made that if the trend in improving bathing water quality, as shown by median faecal coliform values, was continued for the 1991 bathing season, and the weather was cooler and wetter than in 1990, then it would indicate that the improvement in bathing water quality was due to remedial capital expenditure schemes by the Water Service Plcs. This appears to have been borne out by results from the 1991 Bathing Water Survey. Thus the capital expenditure programme embarked upon by the Water Service Plcs appears to be having a real effect on improving bathing water quality.

Figure 11 Bathing Water Quality 1987-1991
Expressed in Terms of Median Faecal Coliform Values



4. OTHER CHANGES SINCE THE 1990 SEASON

4.1 The European Blue Flag Scheme

The 1990 Report outlined the history and development of this campaign, which is highly regarded throughout the European Community. The European Blue Flag for beaches is awarded annually and is only valid for one year. To be eligible for it, a bathing beach has to fulfil all requirements; the Blue Flag has to be removed if any criterion is no longer satisfied.

In 1992 the campaign will continue to be administered in the UK by the Tidy Britain Group, a registered charity and an independent voluntary body, part-funded by the DoE.

New, more stringent, criteria have been agreed for 1992 by the organisers in the 12 European countries participating in the campaign. These are reproduced in Appendix C. Water quality is judged on the results of the analyses of samples taken throughout the previous - in this case 1991 - bathing season.

A significant change in the 1992 criteria, from 1991, is that water quality must comply with the Guideline (G) values of the appropriate microbiological parameters of the EC Bathing Water Directive. This may result in a reduction of the number of Blue Flags awarded for 1992 throughout the European Community. It is often the non-water quality criteria, however, that limit the number of awards.

4.2 The Tidy Britain Group - New "Seaside Award" Scheme for 1992

The Seaside Award is a new scheme for 1992, introduced and administered by the Tidy Britain Group, that will recognise resorts and beaches which have attained high standards of facilities and management (where appropriate), beach cleanliness, and water quality. The award has been designed to complement the European Blue Flag Award, and to compensate for the loss of the Golden Starfish Award that was pilot tested in the UK and Greece in 1990/1991 for rural beaches.

The Seaside Award has two categories, Resort and Rural, the former encompassing managed tourist resorts and the latter designed to award smaller beaches which have limited facilities but still offer clean water and whose attraction lies in their undeveloped character.

Within each category, two levels of water quality are acknowledged: one that meets the mandatory (I) standards for the faecal and total coliform parameters of the EC Bathing Water Directive, and also complies with 28 land-based criteria - this will be known as the Seaside Award; and one that meets the Directive's more stringent guideline (G) standards for the same parameters, and also complies with the same 28 land-based criteria - this will be known as the "Premier" Seaside Award.

Details of the Seaside Award criteria, for Resort and Rural beaches, are reproduced in Appendix D.

4.3 New Controls on the Use of Disinfection

The NRA 1990 Report drew attention to the increasing interest in the use of a number of disinfection processes to improve the microbiological quality of treated sewage effluents that discharge to coastal waters in the vicinity of bathing waters and shellfisheries. Two main applications

are being considered: one, where the disinfection process is an integral part of the long-term treatment/discharge scheme; and the other where an approved disinfection process is added to an unsatisfactory short outfall, prior to its replacement by a long-term scheme that will take a significant time to plan, construct, and commission.

The NRA will control the use of disinfection for sewage effluents through the issue of discharge consents for all intermittent and continuous discharges of sewage, sewage effluent, and sewage contaminated surface waters which affect receiving waters to which microbiological quality standards are applied.

Before a consent is issued, and in addition to any application for consent, the NRA will require from the discharger such information as it may specify regarding the efficacy and environmental effect of any disinfection process proposed for a discharge of sewage effluent.

The NRA has an extensive research and development programme based on laboratory studies that have been supplemented by field trials. Over the past 2 years it has supported and participated in a more structured approach to information gathering that has involved the dischargers and other interested parties through a Forum on the Environmental Impact of Disinfection of Sewage Effluents (FEIDSE). The Forum, which includes representatives from the NRA, the Ministry of Agriculture, Fisheries, and Food (MAFF), the DoE, the Scottish Office, the DoE(NI), the Scottish and Northern Ireland Forum for Environmental Research (SNIFFER), the Scottish Regional Councils, and the 10 English and Welsh Water Service Plcs, co-ordinates a detailed research programme designed to evaluate the efficacy of a range of disinfection techniques and their effect on the environment.

The objectives of the Forum are:

- to provide an input to help the regulators to develop their policies on control of discharges of disinfected sewage effluent;
- to maintain a national strategy for field trials of candidate disinfection processes in conjunction with the sewerage undertakers;
- to ensure that the requirements for environmental impact appraisal of trial disinfection applications are defined;
- to receive the environmental results of trials; and
- to facilitate the dissemination of information on the environmental impact of available disinfection techniques.

When deciding on the appropriate consent conditions for a particular discharge the NRA will have regard to the following criteria.

- Is the technique effective against the common indicator bacteria (faecal coliforms) present in sewage?
- Is the technique also effective against specific more robust microbial organisms? (These include *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Campylobacter*, salmonellae, F-specific bacteriophages, faecal streptococci, enteroviruses and rotaviruses.)
- Are adverse side effects on aquatic fauna and flora, from disinfectant or its by-products, absent in appropriate validated tests?

- Are residual by-products known or likely to be produced which are persistent in the environment, or are likely to be accumulated by aquatic organisms?
- How consistent and reliable is the technique?

Only those disinfection processes which are considered to meet these criteria will be granted consent, other than for approved investigational work or in limited site specific situations on an interim basis, where their use is justified on other grounds.

The NRA will not issue consents for "experimental" use of disinfection where previously defined research objectives are not adhered to, and where the actual purpose is to achieve compliance with the EC Bathing Water Directive standards as judged by the absence of indicator organisms alone.

4.4 The NRA's Research and Development Programme

The NRA continues to place great emphasis on the development and continuation of an effective, customer driven, Research and Development (R&D) programme.

The NRA's R&D programme covers all of the NRA's functions from Flood Defence to Water Quality, and is a mixture of projects inherited at its formation and new projects developed subsequently. Full details of the NRA's R&D programme, since its formation, can be found in the Annual R&D Reviews (NRA 1991b, NRA 1992).

Bathing water related R&D continues to be an area upon which the NRA places a high importance. This is reflected by the wide range of projects, either underway or planned to start in the next year, which addresses various aspects of bathing water quality. In addition to developing projects itself, the NRA also contributes, in terms of both expertise and finance, to ongoing projects with other agencies. Such joint initiatives are being pursued both with Government Departments, such as the Department of Health, and with the Water Service Plcs. In this way the NRA is able to ensure that its resources are targetted in the most effective way towards achieving a real and consistent improvement in bathing water quality.

Table 5 gives details of current or planned NRA funded R&D projects which have direct or indirect implications for the improvement of bathing water quality. It should be emphasised that, because the NRA programme is operationally driven, the list of projects in Table 5 may change with time as projects are finished, redefined, removed, and new projects proposed.

The commitment of the NRA to R&D into improving bathing water quality can be seen by the fact that during the current and next financial year, the NRA will be spending approximately £1.05 million on projects detailed in Table 5.

The previous NRA Report on Bathing Water Quality indicated that the NRA is contributing to a DoE led study into bathing water epidemiology. Details of the pilot studies at Langland Bay in 1989, and Moreton and Ramsgate in 1990 were included in last year's Report (NRA 1991a), and full details of these studies are available from various sources (Balarajan, Soni Raleigh, Yuen, Wheeler, Machin & Cartwright 1991, Jones, Kay, Stanwell-Smith & Wyer 1991, Pike 1990, 1991).

A full scale investigation of the risk to health of bathing in seawater contaminated by sewage was commenced in 1991, following the successful conclusion of the 1989 and 1990 pilot studies. A prospective beach survey was carried out at Paignton, Lyme Regis, Rhyl and Morecambe during the month of August, with 4 further surveys planned for the 1992 bathing season. In addition, a controlled cohort survey was carried out at Southsea in July 1991; a further study is being considered for 1992. The results of the 1991 studies will be available shortly.

Table 5 NRA Funded Bathing Water Related R&D Projects

Project Title	Description	Timescale
Impact of Storm Sewage Overflows – Case Studies	To develop application guidelines for the validation & verification of the upgraded UNIX version of MIKE II for use in assessing the impact of intermittent & continuous discharges.	10/91 to 11/92
Development of Microbial Standards	To define possible effects of recreation by special interest groups in UK marine waters and to develop standards based on phase 1.	6/89 to 3/92
Bathing Water Epidemiology	To determine the incidence of diseases in bathers in waters of different bacterial quality.	4/90 to 3/93
Wastewater Disinfection	To undertake field and laboratory studies of the efficacy and environmental effects of candidate disinfection processes.	10/91 to 12/92
Microbiological Techniques	To produce & update a manual of standard microbiological techniques for the NRA which would include sampling, analysis and quality control procedures.	4/89 to 3/92
Survival of Viruses in Seawater	To assess the extent to which viruses can survive in seawater & sewage-derived debris.	91 to 93
Environmental Behaviour of Microbial Contaminants	To assess the relative importance of a variety of sources of microbial contaminants.	4/88 to 3/92
Evaluation of F– Specific Bacteriophages as a Model for Enteric Viruses	To undertake a laboratory study of the suitability of F– specific bacteriophages as an index of viral pathogens.	92 to 93
Correlation between Enterovirus Concentrations & Faecal Indicator Bacteria	To define the strength & nature of correlations between faecal indicator bacteria concentrations and enterovirus concentrations in seawater.	92 to 93
Litter in Rivers & Marine Waters	To develop methods for determining the principal sources, pathways & sinks of litter in river corridors & on adjacent beaches.	9/91 to 3/94

One of the R&D projects currently underway, which will be of great importance to improving bathing water quality, is that on wastewater disinfection. This is assessing the effectiveness and environmental impact of possible methods of disinfection of sewage effluents. The results from this project will be used to assist the NRA in developing its policy on the consenting of disinfection processes.

4.5 The Urban Waste Water Treatment (UWWT) Directive

A programme to improve coastal discharges affecting bathing waters was agreed in 1989 at a cost of £1,400 million. This bathing water compliance programme has been expanded to an estimated £2,000 million, to include treatment of some coastal discharges in accordance with UK policy on such discharges, and the requirements of the Urban Waste Water Treatment Directive.

The main purpose of the Urban Waste Water Treatment Directive (91/271/EEC), which was adopted on 21 May 1991, is to ensure the provision of an adequate and consistent approach to the collection and treatment of sewage throughout the European Community. The objectives of the Directive are achieved by specifying varying levels of sewage treatment required and the timescale within which these have to be achieved, which differ in their severity depending on the size of the population, and hence size of the discharge, and the nature of the location to which the sewage

treatment works discharges its effluent. With regard to the latter, there are to be 3 categories of waters, defined by their sensitivity or lack of it, to the effects of discharges to them - notably, that of eutrophication. Those waters - whether freshwater, estuarine or coastal - which are especially at risk to the effects of discharges can be designated "*Sensitive Areas*", whilst those estuarine and coastal waters which are more able to absorb the effects of discharges can be designated "*Less Sensitive Areas*". All other waters will fall into a general category.

The Directive specifies secondary treatment as the norm but makes allowance for higher standards of treatment for discharges to "*Sensitive Areas*", and a minimum of primary treatment for discharges to "*Less Sensitive Areas*". The Directive envisages that primary treatment will involve a physical and/or chemical process of settlement of suspended solids, whilst secondary treatment will generally involve biological treatment.

The criteria which will be used for defining "*Sensitive*" and "*Less Sensitive*" are broadly laid out in the Directive, but the precise definitions are to be left to the individual Member States. In the UK this is being carried out by a group set up by the DoE and including representatives of the NRA, the Scottish River Purification Boards, and the Water Service Plcs. These criteria have not yet been finalised, but a Consultation Paper issued jointly by DoE, MAFF and the Welsh Office includes a set of draft criteria to enable "*Sensitive*" and "*Less Sensitive*" Areas to be defined (DoE 1992).

The Urban Waste Water Treatment Directive will require secondary treatment on most discharges to coastal waters unless they are designated "*Less Sensitive Areas*". The costs of providing treatment for coastal discharges has been estimated at £2,200 million (DoE 1991).

4.6 Statutory Water Quality Objectives

The NRA (NRA 1991c) published "Proposals for Statutory Water Quality Objectives" (Water Quality Series No 5) in December 1991 as part of a consultation process under the provisions of the Water Act 1989 (now consolidated into the Water Resources Act 1991). These provisions allow the Secretary of State to prescribe, by Regulations, a system of classifying "Controlled Waters" (ie all groundwaters, lakes, reservoirs, rivers and canals, estuaries and the first 3 nautical miles out to sea) with regard to their quality. The proposals, if adopted, will provide a firmer framework for deciding the policy that governs the determination of consents for discharges into each stretch of controlled waters and the means by which pollution from diffuse sources can be dealt with. They will also provide a mechanism whereby the water quality requirements of relevant EC Directives can be incorporated in overall water quality management plans.

Thus the NRA sampling and monitoring programmes for the 414 identified bathing waters in England and Wales for 1991, to satisfy the requirements of the EC Bathing Water Directive, will provide a valuable input, in conjunction with the Bathing Waters (Classification) Regulations 1991, to establishing Statutory Water Quality Objectives for these waters. All these are coastal or estuarial waters because no inland waters have so far been identified for the UK.

5. DISCUSSION AND CONCLUSIONS

The 1990 NRA Bathing Water Report drew attention to the flawed statistical approach of the assessment of bathing water quality against the Directive's parameters by the "pass/fail" criterion, and proposed the use of the median coliform counts to provide a more definitive method of examining trends in water quality over time.

The use of this technique has confirmed the general water quality improvements over the past few years as set out in the Commission's recent report (CEC 1991).

The 1990 NRA Report also indicated that if the trend continued for the 1991 bathing season, and the weather was cooler than in 1990, it would indicate that the improvement in bathing water quality was due to remedial capital expenditure schemes by the Water Service Plcs. This Report confirms this prediction, in that approximately 97% of bathing waters had a median faecal coliform count of less than 1,250 faecal coliforms per 100ml compared with a figure of nearly 95% in 1990, whilst the weather was cooler and wetter in 1991.

The 1991 data, when considered solely on the Directive's "pass/fail" criterion, indicate a decrease in compliance of almost 3%. Whilst the cooler wetter weather could have contributed to this result, it is considered that the volatility of the data from "snapshot" samples is the main contributor to the contradictory results. The results from the 1991 Survey reinforce the views advanced in the 1990 NRA Report that remedial capital expenditure schemes by the Water Service Plcs are bringing about improvements in bathing water quality in England and Wales; and that the widespread use of the median faecal coliform results to assess bathing water quality should be considered as a meaningful comparative assessment between the bathing water results of all the Member States.

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7. APPENDICES

- Appendix A Bathing Water Directive, Detailed Summary of
 Monitoring Results in 1991
- Appendix B Addresses of NRA National and Regional Offices
- Appendix C Tidy Britain Group - European Blue Flag Criteria 1992
- Appendix D Tidy Britain Group - Seaside Award Criteria 1992

APPENDIX A — BATHING WATER DIRECTIVE

DETAILED SUMMARY OF MONITORING RESULTS IN 1991

The following information forms the basis of the Report to Parliament made by the Department of the Environment in pursuance of Article 13 of the Bathing Water Directive. It provides a summary of the results of the survey during 1991 of the quality of bathing waters in England and Wales included within the scope of Council Directive 76/160/EEC.

Section 1: Changes from 1990 List of Identified Waters

Seven additional bathing waters have been identified in 1991 as follows:

Bathing Water	Region
Amble Links	Northumbrian
Caister	Anglian
Gorleston	Anglian
Hemsby	Anglian
West Mersea	Anglian
Sheerness	Southern
West Kirby	Welsh (in England)

Section 2: Bathing Season and Sampling Frequency

The bathing season is generally taken as being from 15 May to 30 September for England and Wales. However, the competent authorities may vary the length of the season depending on local conditions.

In order to satisfy the requirements of the Directive the minimum sampling frequency was considered to be 20 samples during the course of the bathing season. In the event, a higher sampling frequency was applied for a few waters.

There are no cases where sampling frequency was reduced in accordance with footnote (1) to the Annex to the Directive.

The report is divided into two sections.

Section 3: Coliform Parameters

The tables contain a numerical summary of the information required to assess compliance with the Directive's coliform standards. The table is arranged to show the bathing waters in clockwise order, proceeding round England and Wales to Skinburness in the NRA North West Region. The Isle of Wight waters are placed in the report between Highcliffe and Christchurch, that is to say, as the last waters in the NRA Southern Region.

For each water, the following information is given:

- | | |
|---|--|
| 1. The grid references | |
| TOTAL COLIFORMS | FAECAL COLIFORMS |
| 2. Number of results | 6. Number of results |
| 3. Median of results | 7. Median of results |
| 4. Range of results (minimum and maximum) | 8. Range of results (minimum and maximum) |
| 5. Number of results failing to conform to the Directive's standard | 9. Number of results failing to conform to the Directive's standard. |

Deviations from the values referred to in Article 3 may, in accordance with Article 5(2), be excluded from the assessment of compliance, if they arise as a result of abnormal weather conditions. No such deviations have been reported for this year.

Section 4: Other Mandatory Parameters

The tables contain the numerical summary of results for the other mandatory parameters covered by the Directive. The bathing waters are set out as in Section 3.

The Annex to the Directive provides that these parameters do not have to be measured in every case. The results for each parameter are given as the number of observations, and, in brackets, the number failing to comply with the Directive's imperative requirements. As with Section 3, no deviations, as a result of abnormal weather conditions have been reported this year.

Article 8 states that the Directive may be waived in the case of certain parameters to take into account local weather, geographical conditions or natural enrichment. Waivers for transparency and colour (indicated by an asterisk) have been granted and are likely to be permanent. A number of non-complying samples on the colour and surface active substance parameters have been investigated by the NRA and attributed to natural causes such as the disturbance of sediments by tides and waves and the consequence of natural algal activity. These results are indicated in Section 4 by footnotes and are not regarded as failures.

Section 3 Bathing Waters Survey – 1991 results (United Kingdom)

Compliance with Bathing Water Directive (76/160/EEC): COLIFORM STANDARDS

Northumbrian Region											
Bathing water	National Grid Reference	Number of Results	Total Coliforms		Number failing to conform	Number of Results	Faecal Coliforms		Number failing to conform		
			Median	Range			Median	Range			
Spittal	NU00805150	21	910	30 101000	6	21	170	0 9300	5		
Bamburgh Castle	NU18503530	22	42	1 1050	0	22	19	0 196	0		
Seahouses North	NU21103300	22	66	3 650	0	22	23	1 420	0		
Beadnell	NU23302840	22	185	5 3000	0	22	67	5 1880	0		
Low Newton	NU24202450	22	35	4 3000	0	22	16	2 1600	0		
Alnmouth	NU25301070	22	33	0 1670	0	22	13	0 370	0		
Warkworth	NU25900650	22	23	1 350	0	22	4	0 107	0		
Amblelinks	NU27600440	22	112	1 2400	0	22	25	1 390	0		
Druridge Bay	NZ27909640	22	115	3 3000	0	22	58	1 1310	0		
Newbiggin North	NZ31308780	21	1890	40 300000	6	21	1070	20 86000	8		
Newbiggin South	NZ31108730	21	1390	30 9800	0	21	630	10 5800	4		
Blyth South Beach	NZ32207950	21	390	20 32000	1	21	200	0 3600	1		
Seaton Sluice	NZ33407710	21	670	0 10000	0	21	340	0 6300	2		
Whitley Bay	NZ35307340	21	270	22 18000	1	21	91	4 9500	1		
Tynemouth Cullercoats	NZ36507130	21	270	17 1640	0	21	75	8 460	0		
Tynemouth Long Sands North	NZ36607080	21	120	14 1120	0	21	49	2 900	0		
Tynemouth Long Sands South	NZ36907020	21	214	2 3600	0	21	76	0 640	0		
Tynemouth King Edwards Bay	NZ37306960	20	141	4 1750	0	20	58	3 840	0		
South Shields	NZ37906740	23	270	0 4900	0	22	115	0 1850	0		
Marsden	NZ40006500	23	240	0 14300	1	22	55	0 4800	1		
Whitburn North	NZ40706050	23	850	30 222000	3	22	455	0 42000	5		
Roker/Whitburn South	NZ40705930	23	210	10 5800	0	23	80	0 1400	0		
Seaham Beach	NZ42405080	22	250	10 70000	1	22	95	0 3700	3		
Seaham Remand Home	NZ42605050	22	492	10 83000	3	22	145	0 5100	5		
Crimdon	NZ48503730	22	520	40 6300	0	22	200	20 3600	2		
Seaton Carew North	NZ52503050	22	2060	60 58000	3	22	885	10 16200	6		
Seaton Carew Centre	NZ53102960	22	3300	90 300000	5	22	1545	40 300000	10		
Seaton Carew North Gare	NZ54002860	22	920	40 46000	1	22	375	10 2840	2		
Redcar Coatham	NZ59202570	22	95	0 47000	1	22	45	0 7200	1		
Redcar LB Station	NZ60602550	22	405	0 53000	1	22	160	0 8500	2		
Redcar Granville	NZ61302510	22	210	0 87000	1	22	80	0 13600	1		
Redcar Stray	NZ62502380	22	200	0 5800	0	22	85	0 1410	0		
Saltburn	NZ66602170	22	950	40 184000	1	22	470	10 57000	1		

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Yorkshire Region											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Staithes	NZ78701900	20	1112	60 16450		1	20	717	10 12100		9
Runswick Bay	NZ81101590	20	167	20 7400		0	20	85	<10 2850		1
Sandsend	NZ86401260	20	97	<10 1550		0	20	70	<10 900		0
Whitby	NZ89701170	20	137	5 700		0	20	50	5 420		0
Robin Hoods Bay	NZ95900450	20	357	10 12300		1	20	155	5 2205		1
Scarborough North Bay	TA03709000	20	169	20 6650		0	20	81	5 3450		1
Scarborough South Bay	TA04608860	20	389	73 2975		0	20	235	10 1800		0
Cayton Bay	TA06708450	20	195	10 36300		1	20	77	<10 14600		1
Filey	TA12008060	20	115	10 3250		0	20	72	10 530		0
Reighton	TA14407630	20	50	<10 455		0	20	20	<10 330		0
Flamborough North Landing	TA23807220	20	432	10 7700		0	20	342	10 5300		2
Flamborough South Landing	TA23106920	20	1112	15 17300		2	20	530	5 8225		6
Bridlington North Beach	TA19006720	20	177	20 1750		0	20	40	<10 300		0
Bridlington South Beach	TA18106610	20	97	10 4400		0	20	70	<10 3100		1
Wilsthorpe	TA17206400	21	135	5 2150		0	21	90	5 1250		0
Fraithorpe	TA17106290	20	160	<10 76000		1	20	60	<10 7350		1
Earls Dyke	TA17006150	20	112	<10 2200		0	20	45	<10 420		0
Barmston	TA17205940	20	85	<10 2500		0	20	62	5 2300		1
Skipsea	TA17705720	20	52	5 1420		0	20	29	3 615		0
Hornsea	TA21004780	20	150	10 2400		0	20	110	10 1850		0
Tunstall	TA32203120	20	50	<10 2900		0	20	20	<10 700		0
Withernsea	TA34402810	20	527	10 9450		0	20	285	<10 3600		1

Anglian Region											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Cleethorpes	TA31050860	21	3100	400 38000		4	21	1000	110 51000		7
Mablethorpe Town	TF50808540	21	62	5 900		0	21	33	2 800		0
Sutton-on-sea	TF52258210	21	44	18 500		0	21	28	3 400		0
Moggs Eye	TF55007760	21	17	3 800		0	21	11	0 210		0
Anderby	TF55307620	21	16	3 200		0	21	13	2 140		0
Chapel St Leonard	TF56407220	21	35	9 700		0	21	25	2 700		0
Ingoldmells South	TF57406855	21	38	7 500		0	21	19	3 500		0
Skegness	TF57206345	21	22	3 400		0	21	16	2 140		0
Heacham	TF66303750	20	95	<10 3500		0	20	80	<10 2400		1
Hunstanton Beach	TF67804250	20	50	<10 220		0	20	25	<10 170		0
Wells	TF91404560	20	200	<10 3300		0	20	90	<10 1240		0
Sheringham	TG16204360	20	300	80 1900		0	20	65	<10 590		0
Cromer	TG21904250	20	1800	300 7500		0	20	650	100 2500		1
Mundesley	TG31703660	20	250	40 8100		0	20	65	<10 1010		0
Hemsby	TG50901740	20	25	<10 700		0	20	<10	<10 440		0

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Anglian Region (contd)											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Caister Point	TG53001200	20	220	20	820	0	20	100	<10	450	0
Great Yarmouth North	TG53501050	20	500	<100	1200	0	20	210	<10	600	0
Great Yarmouth Pier	TG53300740	20	2050	100	5400	0	20	870	170	2300	1
Great Yarmouth South	TG53300640	20	2600	<100	8200	0	20	1020	100	3500	2
Gorleston Beach	TG53200310	20	2500	300	7200	0	20	895	340	3300	2
Lowestoft North	TM55309500	20	950	<100	2300	0	20	230	60	2200	1
Lowestoft South	TM54509170	20	105	10	1700	0	20	65	10	450	0
Southwold The Denes	TM50807540	20	110	40	730	0	20	40	<10	340	0
Felixstowe North	TM30503430	20	115	<10	5100	0	20	50	10	530	0
Felixstowe South	TM29703370	20	75	<10	2800	0	20	45	<10	2200	1
Dovercourt	TM25173064	20	215	60	1300	0	20	90	30	590	0
Walton	TM25552156	20	500	100	3000	0	20	230	40	790	0
Frinton	TM23791941	20	220	40	5700	0	20	100	<10	830	0
Holland	TM22451765	20	115	20	1300	0	20	60	<10	490	0
Clacton	TM18791525	20	400	30	1400	0	20	95	<10	620	0
Jaywick	TM14851280	20	350	20	3500	0	20	195	10	3000	1
Brightlingsea	TM07631616	20	75	<10	940	0	20	<10	<10	320	0
West Mersea	TM02271203	20	805	90	4200	0	20	355	30	2700	2

Thames Region											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Shoebury East	TQ94508520	20	100	<100	2100	0	20	55	<10	500	0
Southend Thorpe Bay	TQ91108470	20	300	<100	9800	0	20	240	<10	800	0
Southend Westcliff Bay	TQ86458525	20	450	<100	9300	0	20	195	10	7000	2

Southern Region											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Sheerness	TQ92507500	21	30	3	2450	0	21	21	1	1150	0
Leysdown	TR03407080	21	130	2	4000	0	21	17	0	1330	0
West Beach	TR09806600	21	78	3	2920	0	21	18	1	1230	0
Herne Bay	TR18606860	21	1300	26	23000	2	21	490	10	15500	3
Minnis Bay	TR28606970	21	46	2	450	0	21	23	0	350	0
St Mildred's Bay	TR32807050	21	78	15	1630	0	21	41	8	1790	0
Margate The Bay	TR34707080	21	350	66	12800	1	21	140	21	6450	2
Margate Fulsam Rock	TR35607150	21	180	3	9100	0	21	54	0	9100	1
Joss Bay	TR39907020	20	120	16	720	0	20	51	7	580	0
Broadstairs	TR39806770	20	565	63	6000	0	20	390	48	3120	3

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Compliance with Bathing Water Directive (76/160/EEC): COLIFORM STANDARDS

Southern Region (contd)											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Ramsgate	TR37206400	20	6150	290	53000	9	20	2400	170	15300	13
Sandwich Bay	TR35805900	20	4500	<100	>999999	5	20	1520	<10	104000	8
Deal Castle	TR37805270	20	1800	140	52000	1	20	1140	30	5500	5
St Margaret's Bay	TR36804440	20	320	41	2300	0	20	81	21	690	0
Folkestone	TR23703630	20	2000	220	320000	3	20	635	280	101000	3
Sandgate	TR18803480	20	340	20	6400	0	20	80	13	1960	0
Hythe	TR16003400	21	80	10	10620	1	21	38	4	6960	1
Dymchurch	TR11303040	21	380	20	17600	1	21	110	2	5600	2
St Mary's Bay	TR09302770	21	300	30	10100	1	21	124	<10	5200	2
Littlestone	TR08402390	21	530	39	32800	3	21	180	4	17800	3
Camber	TQ97301840	21	150	5	20000	2	20	112	<1	12480	1
Winchelsea	TQ91201540	21	110	2	5300	0	20	43	1	1060	0
Hastings	TQ81900920	21	880	18	384000	4	20	440	13	20000	4
Bexhill	TQ73700680	21	430	16	4100	0	20	117	6	2090	1
Norman's Bay	TQ68200530	21	380	40	6700	0	20	95	18	2700	1
Pevensey Bay	TQ65700370	21	560	30	8800	0	20	133	5	3880	1
Eastbourne	TV61409820	21	210	11	2100	0	20	88	5	700	0
Seaford	TV48809820	21	172	3	255000	1	20	39	<1	45000	1
Newhaven	TV44909980	21	1400	12	143000	4	20	345	4	19500	5
Saltdean	TQ38100180	21	34	1	1910	0	20	17	<1	1210	0
Brighton	TQ32300340	21	60	1	14300	1	20	37	2	2270	1
Hove	TQ28800430	21	250	<10	200000	2	21	75	1	68800	3
Southwick	TQ24200480	21	1800	150	15000	3	21	530	65	5600	2
South Lancing	TQ18300360	21	98	<10	20000	2	21	35	<1	2900	2
Worthing	TQ13900210	21	220	1	9800	0	21	80	2	3200	1
Littlehampton	TQ04000130	21	50	<10	8000	0	21	15	<1	490	0
Middleton-on-sea	SZ98509990	21	20	<10	4500	0	21	25	<1	2800	1
Bognor Regis	SZ92309850	21	179	<10	5600	0	21	64	<1	2600	2
Pagham	SZ89209720	21	60	<10	550	0	21	27	<1	450	0
Selsey	SZ86809370	21	120	<10	27500	1	21	80	2	18300	1
Bracklesham Bay	SZ80509630	21	100	1	4500	0	21	34	2	4400	1
West Wittering	SZ76809800	21	54	<10	3300	0	21	30	<1	3300	1
West of Eastoke	SZ72909840	21	80	<10	1600	0	21	35	1	230	0
West Hayling	SZ70509870	21	30	<10	760	0	21	13	<1	210	0
Eastney	SZ67509880	21	70	<10	11000	1	21	30	4	6700	1
Southsea	SZ65309820	21	170	20	3500	0	21	70	9	6200	1
Stokes Bay	SZ60009790	21	65	10	1300	0	21	20	<1	340	0
Lee-on-Solent	SU56200050	21	125	<10	7250	0	21	25	1	1364	0
Hillhead	SU54000220	21	40	<10	19000	1	21	23	<1	4300	1
Calshot	SU48100120	21	135	<10	2700	0	21	30	3	2600	1
Lepe	SZ45609850	21	20	9	7700	0	21	15	<1	2600	1
Milford-on-sea	SZ28309150	21	1100	10	5700	0	21	590	<1	2200	1
Christchurch Bay	SZ23909280	21	70	<10	8583	0	21	55	1	1400	0
Highcliffe	SZ21609310	21	155	<10	5900	0	21	20	1	1200	0
Compton Bay	SZ37708410	21	63	<10	290	0	21	20	4	250	0
Totland Bay	SZ32208710	21	45	<10	900	0	21	20	<1	320	0
Colwell Bay	SZ32808790	21	100	<10	8250	0	21	25	<1	810	0
Gurnard	SZ47709590	21	520	90	7600	0	21	160	17	6700	2
Cowes	SZ48809670	21	1100	80	62000	5	21	750	15	34100	7
Ryde	SZ60109270	21	110	<10	>10000	1	21	31	<1	>2000	1

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Southern Region (contd)											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Seagrove	SZ63209120	21	250	<1	10500	1	21	180	1	8700	2
St Helens	SZ63708920	21	45	<9	16000	1	21	20	2	8000	1
Bembridge	SZ65708810	21	70	<1	45500	3	21	62	<1	16800	4
Whitecliff Bay	SZ64108620	21	82	2	2600	0	21	30	1	540	0
Sandown	SZ60108430	21	60	<1	2500	0	21	20	<1	760	0
Shanklin	SZ58508110	20	109	<10	8000	0	20	37	<1	2200	1
Ventnor	SZ56207730	21	2700	100	7800	0	21	630	15	4100	4

Wessex Region – South Coast											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Christchurch											
Highcliffe Castle	SZ20009290	24	40	<10	3000	0	24	15	<10	420	0
Christchurch											
Friar's Cliff	SZ19209252	24	110	<10	2000	0	24	30	<10	450	0
Christchurch											
Avon Beach	SZ18889223	24	145	10	1500	0	24	45	10	660	0
Christchurch Mudeford											
Sandbank East	SZ18259121	24	85	<10	3920	0	24	40	<10	1000	0
Bournemouth											
Hengistbury East	SZ17009060	24	10	<10	1600	0	24	10	<10	280	0
Bournemouth Pier	SZ08859065	25	50	<10	1050	0	25	20	6	720	0
Poole Shore Rd											
Sandbanks	SZ05108830	26	10	<10	590	0	26	<10	4	520	0
Poole Harbour											
Sandbanks	SZ04908850	27	70	<10	6500	0	27	40	4	1360	0
Poole Harbour Lake	SY98329040	25	150	10	970	0	25	100	10	940	0
Poole Harbour											
Rockley Sands	SY97209080	26	280	30	800	0	26	115	10	600	0
Shell Bay North	SZ03708660	26	10	<10	330	0	26	<10	2	320	0
Studland Knoll House	SZ03488353	25	<10	4	470	0	25	<10	2	450	0
Swanage Central	SZ03297910	25	40	<10	2500	0	25	10	<10	950	0
Kimmeridge Bay	SY90707905	26	20	<10	580	0	26	10	<10	510	0
Lulworth Cove	SY82477995	26	60	10	780	0	26	30	<10	590	0
Durdle Door East	SY80808030	26	10	<10	650	0	26	<10	<10	80	0
Durdle Door West	SY80408030	26	<10	<10	80	0	26	<10	<10	40	0
Ringstead Bay	SY75198132	26	25	<10	1040	0	26	15	<10	1020	0
Bowleaze Cove	SY70428189	26	90	<10	810	0	26	35	<10	790	0
Church Ope Cove	SY69767100	24	<10	<10	120	0	24	<10	<10	120	0
Weymouth Lodmoor	SY68806710	25	20	<10	630	0	25	10	<10	210	0
Weymouth Central	SY68107940	25	20	<10	520	0	25	20	<10	480	0
Portland Harbour											
Castle Cove	SY67607750	24	40	<10	650	0	24	15	<10	140	0
Portland Harbour											
Sandsfoot Castle	SY67307720	23	20	<10	230	0	23	10	<10	70	0
West Bay (West)	SY45909040	24	15	<10	1320	0	24	<10	<10	680	0

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Wessex Region – South Coast (contd)											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Eypemouth	SY44689100	24	25	<10	7000	0	24	10	<10	1200	0
Seatown	SY41879165	24	25	<10	5500	0	24	15	<10	2040	1
Charmouth West	SY36309300	26	60	<10	4000	0	26	40	<10	850	0

South West Region											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Lyme Regis											
Church Beach	SY34369212	20	2950	20	51000	6	20	1115	10	29000	8
Lyme Regis Cobb	SY33909185	20	205	10	6300	0	20	120	<10	560	0
Seaton (Devon)	SY24508985	20	35	<10	34000	1	20	<10	<10	9200	1
Beer	SY23158910	20	65	<10	23000	1	20	25	<10	6600	1
Sidmouth Town	SY12708720	20	155	<10	19000	1	20	45	<10	9900	1
Sidmouth											
Jacobs Ladder	SY11908695	20	70	<10	2000	0	20	30	<10	740	0
Ladram Bay	SY09728515	20	70	<10	4500	0	20	40	<10	2500	1
Budleigh Salterton	SY06958190	20	150	10	168000	1	20	70	<10	69000	1
Sandy Bay	SY03357980	20	150	<10	5400	0	20	40	<10	2300	1
Exmouth	SY00987995	20	80	<10	2500	0	20	45	<10	690	0
Dawlish Warren	SX98307875	20	30	<10	570	0	20	<10	<10	400	0
Dawlish Town	SX96557680	20	145	<10	2600	0	20	75	<10	610	0
Dawlish											
Coryton Cove	SX96117606	20	70	<10	1600	0	20	35	<10	900	0
Teignmouth											
Holcombe	SX95657461	20	90	10	900	0	20	50	<10	120	0
Teignmouth Town	SX94307285	20	150	10	3100	0	20	120	10	630	0
Shaldon	SX93507230	20	650	20	23000	3	20	270	<10	8500	4
Ness Cove	SX93857170	20	250	<10	17000	2	20	75	<10	13000	2
Maidencombe	SX92786850	20	105	<10	1600	0	20	55	<10	220	0
Watcombe	SX92626730	20	80	<10	800	0	20	25	<10	230	0
Oddicombe	SX92656585	20	20	<10	370	0	20	<10	<10	370	0
Babbacombe	SX93006545	20	40	<10	440	0	20	15	<10	400	0
Redgate	SX93506480	20	45	<10	4200	0	20	35	<10	4200	1
Meadfoot	SX93056305	20	20	<10	260	0	20	10	<10	130	0
Beacon Cove	SX91956307	20	20	<10	270	0	20	<10	<10	190	0
Torre Abbey	SX90956351	20	75	<10	2500	0	20	40	<10	350	0
Hollicombe	SX89806215	20	20	<10	320	0	20	<10	<10	150	0
Paignton Preston Sands	SX89646177	20	130	<10	1800	0	20	55	<10	1800	0
Paignton											
Paignton Sands	SX89496063	20	140	<10	2000	0	20	55	<10	800	0
Goodrington	SX89355940	20	155	10	1100	0	20	55	<10	450	0
Broadsands	SX89705745	20	45	<10	8000	0	20	25	<10	1080	0

Section 3 Bathing Waters Survey – 1991 results (United Kingdom)

Compliance with Bathing Water Directive (76/160/EEC): COLIFORM STANDARDS

South West Region (contd)											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Shoalstone	SX93205662	20	20	<10	270	0	20	<10	<10	170	0
St Mary's Bay	SX93205510	20	65	<10	550	0	20	15	<10	350	0
Dartmouth Castle and Sugary Cove	SX88655020	20	95	30	1200	0	20	45	<10	630	0
Blackpool Sands	SX85504785	20	20	<10	100	0	20	<10	<10	60	0
Slapton Sands Monument	SX82954430	20	15	<10	180	0	20	<10	<10	100	0
Slapton Sands Torcross	SX82354195	20	30	<10	400	0	20	15	<10	200	0
Mill Bay	SX74073825	20	60	<10	5400	0	20	35	<10	5400	1
Salcombe North Sands	SX73103820	20	260	<10	130000	2	20	115	<10	126000	4
Salcombe South Sands	SX72853775	20	370	10	4400	0	20	125	10	1800	0
Hope Cove	SX67553975	20	120	<10	3400	0	20	85	<10	2300	1
Thurlestone South	SX67654170	20	35	<10	800	0	20	15	<10	410	0
Thurlestone North	SX67404210	20	950	10	44000	3	20	375	<10	30000	6
Bantham	SX66234380	20	35	<10	1200	0	20	<10	<10	500	0
Bigbury-on-Sea South	SX65104415	20	30	<10	6900	0	20	25	<10	5600	1
Bigbury-on-Sea North	SX64954430	20	20	<10	350	0	20	<10	<10	260	0
Challaborough	SX64924480	20	55	<10	2400	0	20	20	<10	2300	1
Mothecombe	SX61054734	20	80	<10	10000	0	20	15	<10	5400	1
Wembury	SX51604850	20	40	<10	1800	0	20	30	<10	1300	0
Bovisand	SX49305050	20	50	<10	1900	0	20	10	<10	900	0
Plymouth Hoe East	SX47805370	20	1100	50	18000	1	20	530	20	5600	3
Plymouth Hoe West	SX47505370	20	1250	<10	28000	2	20	540	<10	28000	4
Portwrinkle	SX35905380	20	112	6	2710	0	20	108	1	1740	0
Downerry	SX31405380	20	27	2	1280	0	20	18	1	1350	0
Seaton (Cornwall)	SX30305430	20	98	6	10500	1	20	42	2	4300	1
Millendreath	SX26805410	20	85	4	1240	0	20	21	1	1040	0
East Looe	SX25705320	20	375	44	4000	0	20	195	10	1200	0
Readymoney	SX11805110	20	1005	72	5300	0	20	605	20	3300	2
Polkerris	SX09105230	20	113	2	1110	0	20	50	0	600	0
Par	SX08305330	20	515	10	3700	0	20	305	2	1600	0
Crinnis Golf Links	SX06305220	20	46	1	10440	1	20	19	0	4640	1
Crinnis Leisure Centre	SX05605210	20	33	1	8120	0	20	12	0	1810	0
Charlestown	SX04205160	20	144	4	2900	0	20	36	0	1000	0
Duporth	SX03505120	20	43	2	1300	0	20	23	0	600	0
Porthpean	SX03205070	20	31	2	3300	0	20	14	0	1600	0
Pentewan	SX01804670	20	264	0	6900	0	20	140	2	1900	0
Polstreath	SX01704540	20	310	24	12880	1	20	185	9	1120	0
Port Mellon	SX01604390	20	55	5	900	0	20	26	3	360	0
Gorran Haven											
Little Perhaver	SX01304170	20	134	23	22800	1	20	110	7	10800	1
Gorran Haven (Vault)	SX01004080	20	8	0	122	0	20	3	0	48	0
Porthluney	SW97304130	20	360	6	22700	2	20	120	3	6400	1
Pendower	SW90503830	20	13	3	>10000	1	20	13	0	4490	1
Gyllyngvase	SW80903160	20	52	1	2890	0	20	44	1	1710	0
Swanpool	SW80303130	20	150	17	5200	0	20	39	2	1180	0
Maen Porth	SW79002960	20	445	12	6600	0	20	198	8	2900	1
Porthallow	SW79702330	20	840	2	12300	1	20	350	0	4800	5

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Compliance with Bathing Water Directive (76/160/EEC): COLIFORM STANDARDS

South West Region (contd)												
Bathing water	National Grid Reference	Number of Results	Total Coliforms				Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range					Median	Range		
Porthoustock	SW80702170	20	4	0	56	0	20	2	0	43	0	
Coverack	SW78301840	20	176	16	2800	0	20	154	4	1610	0	
Kennack Sands	SW73401650	20	10	0	6960	0	20	7	1	370	0	
Pollurian Cove	SW66801870	20	162	4	13000	1	20	48	2	5300	1	
Poldhu Cove	SW66501980	20	85	2	1700	0	20	23	3	1500	0	
Gunwalloe Cove	SW65402250	20	5	0	212	0	20	2	0	182	0	
Porthleven West	SW63202530	20	615	10	16700	2	20	105	8	7600	3	
Praa Sands East	SW58502760	20	40	1	1500	0	20	18	0	1380	0	
Praa Sands West	SW57702810	20	27	0	490	0	20	17	0	310	0	
Perran Sands	SW53902930	20	76	2	8000	0	20	58	2	7200	2	
Mounts Bay L Holgus	SW51303100	20	142	4	1300	0	20	93	4	770	0	
Mounts Bay Heliport	SW48503110	20	1000	10	43000	4	20	375	0	23000	6	
Mounts Bay Penzance	SW47502980	20	545	10	16400	2	20	250	0	12900	2	
Mounts Bay Wherry Town	SW46702940	20	8100	450	>999999	8	20	5200	200	730000	15	
Porthcurno	SW38702230	20	106	1	950	0	20	27	1	660	0	
Sennen	SW35522645	20	19	0	1030	0	20	10	0	260	0	
Porthmeor	SW51504103	20	49	3	600	0	20	25	2	224	0	
Porth Gwidden	SW52204110	20	419	20	157000	2	20	209	10	74000	4	
Porthminster	SW52204025	20	246	12	2420	0	20	75	2	1590	0	
Carbis Bay Station Beach	SW52803890	20	43	3	770	0	20	54	1	630	0	
Carbis Bay Porth Kidney Sands	SW54003850	20	370	3	10500	1	20	116	0	5400	2	
The Towans (Hayle)	SW56303950	20	44	0	11600	1	20	9	0	200	0	
The Towans (Godrevy)	SW58104170	20	98	0	3040	0	20	40	0	1420	0	
Portreath	SW65304550	20	66	0	2130	0	20	43	0	630	0	
Porthtowan	SW68904790	20	47	2	>10000	1	20	19	0	>10000	1	
Trevaunance Cove	SW72305170	20	1105	168	>100000	1	20	295	30	4900	5	
Perranporth Village End	SW75705480	20	230	7	>10000	1	20	109	2	>10000	2	
Perranporth Penhale Sands	SW76205700	20	49	0	3720	0	20	29	0	1480	0	
Holywell Bay	SW76505950	20	52	6	1480	0	20	37	4	1400	0	
Crantock	SW78406080	20	157	6	3300	0	20	74	8	1400	0	
Fistral	SW79606230	20	49	4	990	0	20	40	0	380	0	
Towan	SW81006205	20	214	4	6200	0	20	154	0	4200	1	
Watergate	SW84106490	20	100	0	134000	2	20	28	0	44000	2	
Mawgan Porth	SW84806740	20	2500	8	17000	1	20	750	0	3700	3	
Treyarnon Bay	SW85707390	20	17	0	10900	1	20	16	0	8800	1	
Constantine Bay	SW85807480	20	26	2	540	0	20	8	0	550	0	
Mother Ivey's Bay	SW86307600	20	77	3	1150	0	20	36	1	490	0	
Harlyn Bay	SW87707550	20	74	0	2290	0	20	42	0	1490	0	
Trevone Bay	SW89207610	20	540	66	5400	0	20	255	20	3900	3	
Rock	SW93607550	20	335	8	7400	0	20	250	0	3300	1	
Daymer Bay	SW92807760	20	118	2	1950	0	20	45	1	1410	0	
Polzeath	SW93607920	20	270	2	4800	0	20	115	2	2400	1	
Widemouth Sand	SS19800240	20	10	<10	630	0	20	10	<10	200	0	
Bude Summerleaze	SS20400660	20	205	30	11000	1	20	85	20	4300	3	
Bude Crooklets	SS20300720	20	145	20	10000	0	20	60	10	4600	3	

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Compliance with Bathing Water Directive (76/160/EEC): COLIFORM STANDARDS

South West Region (contd)											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Bude Sandy Mouth	SS20200990	20	75	<10	800	0	20	35	<10	800	0
Hartland Quay	SS22302485	20	45	<10	890	0	20	15	<10	390	0
Westward Ho!	SS43252940	20	70	<10	1200	0	20	50	<10	600	0
Instow	SS47173044	20	470	10	30000	2	20	260	<10	8900	3
Saunton Sands	SS44553760	20	55	<10	2300	0	20	30	<10	800	0
Croyde Bay	SS43473930	20	55	<10	900	0	20	20	<10	400	0
Woolacombe											
Putsborough	SS44754085	20	15	<10	310	0	20	<10	<10	40	0
Woolacombe Village	SS45624370	20	65	<10	2000	0	20	15	<10	900	0
Ilfracombe											
Tunnels Beach	SS51454780	20	180	<10	470	0	20	90	<10	280	0
Ilfracombe Capstone (Wildersmouth)	SS51824790	20	750	30	2800	0	20	330	10	2200	1
Ilfracombe Hele	SS53554792	20	735	10	14000	1	20	495	<10	3900	2
Combe Martin	SS57724732	20	815	190	34000	1	20	425	40	3200	2
Lynmouth	SS72504975	20	610	90	172000	3	20	360	40	126000	3

Wessex Region — North Coast											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Porlock Weir	SS86404790	24	270	20	1400	0	24	85	10	690	0
Minehead Terminus	SS97304650	24	650	30	23000	1	24	275	10	6900	1
Dunster North West	SS99704550	20	830	240	9000	0	20	330	80	5800	1
Blue Anchor West	ST02304350	24	360	160	5400	0	24	240	80	5000	2
Burnham Jetty	ST30204880	24	1600	210	13000	1	24	395	80	2100	1
Berrow North of											
Unity Farm	ST29305450	24	665	110	3900	0	24	140	20	690	0
Brean	ST29605850	24	325	40	1600	0	24	80	10	1000	0
Weston-s-Mare											
Uphill Slipway	ST31205880	26	795	20	3400	0	26	250	10	2100	1
Weston-s-Mare											
Grand Pier	ST31706150	26	845	60	5600	0	26	600	40	5600	2
Weston-s-Mare											
Sand Bay	ST33006350	25	270	30	600	0	25	90	<10	290	0
Clevedon											
Swimming Pool	ST39807120	26	1150	290	9000	0	26	505	20	2700	4

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Welsh Region											
Bathing water	National Grid Reference	Number of Results	Total Coliforms			Number failing to conform	Number of Results	Faecal Coliforms			Number failing to conform
			Median	Range				Median	Range		
Jacksons Bay Barry	ST12206657	21	2300	300	8200	0	21	700	100	4700	2
Whitmore Bay Barry	ST11456625	21	1300	300	6500	0	21	440	50	1700	0
Cold Knap Barry	ST09656640	21	300	<100	3800	0	21	130	<10	510	0
Southerndown	SS88407290	22	700	50	8800	0	22	215	15	1900	0
Trecco Bay Porthcawl	SS83107630	22	165	20	3800	0	22	42	<10	1300	0
Sandy Bay Porthcawl	SS82407650	22	215	10	3000	0	22	100	<10	2000	0
Rest Bay Porthcawl	SS80007790	22	140	30	2700	0	22	42	5	800	0
Aberafan	SS73908960	22	445	30	4000	0	22	<100	5	700	0
Swansea Bay	SS64409210	22	1350	100	7200	0	22	335	50	1800	0
Bracelet Bay	SS63008710	22	1100	200	3800	0	22	615	<100	1900	0
Limeslade Bay	SS62508700	22	1250	<100	3400	0	22	405	<100	1600	0
Langland Bay	SS60608710	22	370	30	1400	0	22	175	<10	800	0
Caswell Bay	SS59108740	22	145	40	2400	0	22	70	<10	500	0
Oxwich Bay	SS50708620	22	23	<2	2400	0	22	17	<2	160	0
Port Eynon Bay	SS47208480	22	8	<2	1400	0	22	5	1	91	0
Rhossili	SS41409000	22	14	2	200	0	22	7	<2	116	0
Pembrey	SS40009980	22	31	<2	2200	0	22	7	<2	400	0
Pendine	SN23800740	20	102	8	1200	0	20	50	<5	1000	0
Amroth	SN16700680	20	100	<5	6000	0	20	47	1	800	0
Saundersfoot	SN14100470	20	1200	50	44000	1	20	230	<10	3600	1
Tenby North	SN13450080	20	45	5	1600	0	20	22	<5	500	0
Tenby South	SS13259985	20	125	<10	9400	0	20	60	<10	3800	1
Broadhaven	SM86101380	21	260	25	4000	0	21	150	<10	3600	1
Newgale	SM84602170	21	30	<5	310	0	21	12	<2	112	0
Whitesands	SM73002700	21	60	4	1400	0	21	15	2	500	0
Newport	SN05304070	21	110	5	1800	0	21	50	<2	1700	0
Traeth Gwyn											
New Quay	SN39805970	21	100	<10	11000	1	21	46	<5	485	0
Aberystwyth South	SN57908140	21	1000	50	8200	0	21	170	10	4600	1
Aberystwyth North	SN58308220	21	300	20	5400	0	21	125	5	5200	1
Borth	SN60609010	21	38	2	900	0	21	10	<2	400	0
Aberdyfi	SN60729580	21	310	60	7600	0	21	180	<10	2380	1
Tywyn	SH57670032	21	100	10	17900	1	21	80	<10	3180	1
Fairbourne	SH60911307	21	30	<10	1030	0	21	30	<10	330	0
Barmouth	SH60841590	21	40	<10	4000	0	21	30	<10	1040	0
Llandanwg	SH56692818	21	470	10	5600	0	21	140	<10	710	0
Harlech	SH56763148	21	80	<10	9400	0	21	30	<10	4930	1
Morfa Bychan	SH54213595	21	220	<10	2270	0	21	80	<10	1210	0
Criccieth	SH50333807	21	310	<10	4100	0	21	90	<10	2280	1
Pwllheli	SH37103407	21	10	<10	420	0	21	<10	<10	420	0
Abersoch	SH31682772	21	110	<10	2330	0	21	20	<10	1670	0
Morfa Dinlle	SH43495669	24	40	<10	470	0	23	20	<10	310	0
Rhosneigr	SH32377212	22	<10	<10	230	0	22	<10	<10	110	0
Trearddur Bay	SH25567891	22	35	<10	2120	0	22	20	<10	1660	0
Benllech	SH52688256	21	600	<10	8000	0	21	300	<10	4940	3
Llandudno											
West Shore	SH76558165	22	3700	50	31900	7	22	1240	<10	13400	9

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Welsh Region (contd)											
Bathing water	National Grid Reference	Number of Results	Total Coliforms		Number failing to conform	Number of Results	Faecal Coliforms		Number failing to conform		
			Median	Range			Median	Range			
Llandudno											
North Shore	SH79188227	22	270	20 2480	0	22	135	10 2020	1		
Colwyn Bay	SH85847917	22	470	30 4100	0	22	215	<10 2550	1		
Kinmel Bay											
(Sandy Cove)	SH97808060	22	3360	110 22200	4	22	755	40 10800	4		
Rhyl	SJ00208260	22	7050	150 >50000	8	22	1675	10 24100	8		
Prestatyn	SJ05408390	22	765	<10 10600	1	22	295	<10 2080	1		
West Kirby	SJ21008680	22	870	<10 15300	1	22	515	<10 8200	3		

North West Region											
Bathing water	National Grid Reference	Number of Results	Total Coliforms		Number failing to conform	Number of Results	Faecal Coliforms		Number failing to conform		
			Median	Range			Median	Range			
Meols	SJ23009060	20	425	80 >18000	1	20	150	20 >18000	4		
Moreton	SJ25709180	20	130	<20 35000	1	20	65	<20 35000	1		
New Brighton	SJ28709370	20	500	70 900000	1	20	250	<20 35000	1		
Formby	SD27701000	20	650	20 130000	2	20	210	<20 130000	2		
Ainsdale	SD29701290	20	1000	20 80000	2	20	170	<20 80000	4		
Southport	SD32201790	20	7250	80 900000	6	20	1400	50 900000	9		
St Annes	SD31802830	20	2100	50 >18000	4	20	360	<20 >18000	4		
St Annes North	SD30403050	20	3000	170 16000	1	20	800	20 3500	3		
Blackpool South	SD30403380	20	5500	500 >18000	4	20	900	170 >18000	6		
Blackpool Central	SD30603560	20	3500	500 >18000	3	20	950	80 >18000	6		
Blackpool North	SD30503640	20	7250	500 >18000	6	20	800	200 >18000	8		
Bispham	SD30703970	20	3500	180 >18000	2	20	500	50 16000	2		
Cleveleys	SD31204330	20	5500	170 >180000	5	20	750	<20 9000	5		
Fleetwood	SD33604850	20	3500	130 16000	3	20	500	40 3500	3		
Heysham -											
Half Moon Bay	SD41306180	20	1200	130 >18000	2	20	185	20 5500	1		
Morecambe South	SD42206360	20	5500	350 >18000	5	20	1500	20 9000	9		
Morecambe North	SD44106500	20	7250	1300 >18000	6	20	1300	70 16000	7		
Bardsea	SD30007400	20	3500	350 >18000	5	20	350	<20 9000	4		
Aldingham	SD28307090	20	500	40 9000	0	20	155	<20 5500	2		
Newbiggin	SD27306940	20	2500	80 >18000	2	20	500	<20 3500	4		
Walney Biggar Bank	SD17806730	20	115	0 9000	0	20	60	0 800	0		
Walney Sandy Gap	SD17506810	20	170	0 16000	1	20	120	0 1700	0		
Walney West Shore	SD17007000	20	250	20 3500	0	20	115	<20 800	0		
Roan Head	SD19807580	20	1300	700 16000	1	20	300	20 16000	1		
Askam-in-Furness	SD20907820	20	800	50 9000	0	20	260	<20 3500	2		
Haverigg	SD16007780	20	590	40 11000	1	20	430	40 4600	5		
Silecroft	SD12008120	20	90	0 11000	1	20	40	0 4600	1		
Seascale	NY03400100	20	590	40 >12000	5	20	410	40 >12000	6		
St Bees	NX95901170	20	230	40 2400	0	20	145	0 930	0		
Allonby South	NY06604060	21	2100	40 >12000	4	20	680	0 11000	5		
Allonby	NY07804240	21	930	40 11000	1	20	430	0 4600	4		
Silloth	NY09405280	21	390	<10 4600	0	20	90	0 2400	1		
Skinburness	NY12605650	21	1500	90 11000	1	20	330	9 4600	1		

Section 4 Bathing Waters Survey – 1991 results (United Kingdom)

Compliance with Bathing Water Directive (76/160/EEC): Other Parameters

Northumbrian Region									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Spittal	NU00805150	1(0)	23(0)*	2(1)	2(0)	23(0)	23(0)	23(0)	23(0)
Bamburgh Castle	NU18503530	1(0)	24(0)*	2(0)	2(0)	24(0)	24(0)	24(0)	24(0)
Seahouses North	NU21103300	1(0)	24(0)*	2(1)	2(1)	24(0)	24(0)	24(0)	24(0)
Beadnell	NU23302840	1(0)	24(0)*	2(0)	2(0)	24(0)	24(0)	24(0)	24(0)
Low Newton	NU24202450	1(0)	24(0)*	2(0)	2(1)	24(0)	24(0)	24(0)	24(0)
Alnmouth	NU25301070	1(0)	24(0)*	2(1)	2(1)	24(0)	24(0)	24(0)	24(0)
Warkworth	NU25900650	1(0)	24(0)*	2(0)	2(1)	24(0)	24(0)	24(0)	24(0)
Amblelinks	NU27600440	1(0)	24(0)*	2(0)	2(1)	24(0)	24(0)	24(1)	24(0)
Druridge Bay	NZ27909640	1(0)	24(0)*	2(0)	2(1)	24(0)	24(0)	24(0)	24(0)
Newbiggin North	NZ31308780	1(0)	24(0)*	2(0)	2(1)	24(0)	24(1)	24(1)	24(0)
Newbiggin South	NZ31108730	1(0)	24(0)*	2(0)	2(1)	24(0)	24(0)	24(0)	24(0)
Blyth South Beach	NZ32207950	1(0)	23(0)*	2(1)	2(1)	23(0)	23(0)	23(0)	23(0)
Seaton Sluice	NZ33407710	1(0)	23(0)*	2(2)	2(2)	23(0)	23(0)	23(0)	23(1)
Whitley Bay	NZ35307340	1(0)	23(0)*	2(0)	2(2)	23(0)	23(0)	23(0)	23(0)
Tynemouth Cullercoats	NZ36507130	1(0)	23(0)*	2(1)	2(1)	23(0)	23(0)	23(0)	23(0)
Tynemouth									
Long Sands North	NZ36607080	1(0)	23(0)*	2(1)	2(0)	23(0)	23(0)	23(0)	23(0)
Tynemouth									
Long Sands South	NZ36907020	1(0)	23(0)*	2(0)	2(0)	23(0)	23(0)	23(1)	23(0)
Tynemouth									
King Edwards Bay	NZ37306960	1(0)	22(0)*	2(1)	2(0)	22(0)	22(0)	22(0)	22(0)
South Shields	NZ37906740	1(0)	25(0)*	2(0)	2(0)	25(0)	25(0)	25(1)	25(0)
Marsden	NZ40006500	1(0)	25(0)*	2(1)	2(0)	25(0)	25(0)	25(0)	25(0)
Whitburn North	NZ40706050	1(0)	25(0)*	2(1)	2(0)	25(0)	25(0)	25(0)	25(0)
Roker/Whitburn South	NZ40705930	1(0)	25(0)*	2(0)	2(1)	25(0)	25(0)	25(0)	25(0)
Seaham Beach	NZ42405080	1(0)	24(0)*	2(1)	2(0)	24(0)	24(0)	24(0)	24(0)
Seaham Remand Home	NZ42605050	1(0)	24(0)*	2(0)	2(2)	24(0)	24(0)	24(1)	24(0)
Crimdon	NZ48503730	1(0)	24(19)	2(0)	2(0)	24(0)	24(0)	24(0)	24(0)
Seaton Carew North	NZ52503050	1(0)	24(11)	2(1)	2(2)	24(1)	24(0)	24(0)	24(0)
Seaton Carew Centre	NZ53102960	1(0)	24(10)	2(2)	2(0)	24(0)	24(0)	24(0)	24(0)
Seaton Carew North Gare	NZ54002860	1(0)	24(12)	2(2)	2(1)	24(1)	24(0)	24(0)	24(0)
Redcar Coatham	NZ59202570	1(0)	24(0)*	2(0)	2(1)	24(0)	24(0)	24(0)	24(0)
Redcar LB Station	NZ60602550	1(0)	24(0)*	2(0)	2(1)	24(1)	24(0)	24(0)	24(0)
Redcar Granville	NZ61302510	1(0)	24(0)*	2(0)	2(1)	24(0)	24(0)	24(1)	24(0)
Redcar Stray	NZ62502380	1(0)	24(0)*	2(0)	2(0)	24(0)	24(0)	24(0)	24(0)
Saltburn	NZ66602170	1(0)	24(0)*	2(0)	2(0)	24(0)	24(0)	24(0)	24(0)
(* Denotes waiver granted because of geographical conditions)									

Yorkshire Region									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Staithes	NZ78701900	19(0)	19(0)*	2(1)	2(1)	20(0)	20(0)	20(0)	20(0)
Runswick Bay	NZ81101590	19(0)	19(0)*	2(0)	2(1)	20(0)	20(0)	20(0)	20(0)
Sandsend	NZ86401260	19(0)	19(0)*	2(0)	2(1)	20(0)	20(0)	20(0)	20(0)
Whitby	NZ89701170	18(0)	19(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Robin Hoods Bay	NZ95900450	18(0)	19(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
(* Denotes waiver granted because of geographical conditions)									

Section 4 Bathing Waters Survey – 1991 results (United Kingdom)

Compliance with Bathing Water Directive (76/160/EEC): Other Parameters

Yorkshire Region (contd)									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Scarborough North Bay	TA03709000	18(0)	19(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Scarborough South Bay	TA04608860	18(0)	19(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Cayton Bay	TA06708450	18(0)	19(0)*	2(0)	2(0)	21(0)	21(0)	21(1)	21(0)
Filey	TA12008060	18(0)	19(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Reighton	TA14407630	18(0)	19(0)*	2(0)	2(1)	21(0)	21(0)	21(1)	21(0)
Flamborough North Landing	TA23807220	18(0)	18(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Flamborough South Landing	TA23106920	19(0)	19(0)*	2(0)	2(2)	22(0)	22(0)	22(0)	22(0)
Bridlington North Beach	TA19006720	19(0)	19(0)*	2(0)	2(2)	20(0)	20(0)	20(0)	20(0)
Bridlington South Beach	TA18106610	20(0)	20(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Wilsthorpe	TA17206400	20(0)	20(0)*	2(1)	2(0)	21(0)	21(0)	21(0)	21(0)
Fraisthorpe	TA17106290	20(0)	19(0)*	2(0)	2(1)	20(0)	20(0)	20(0)	20(0)
Earls Dyke	TA17006150	18(0)	19(0)*	2(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Barmston	TA17205940	17(0)	19(0)*	2(0)	2(2)	22(0)	22(0)	22(1)	22(0)
Skipsea	TA17705720	16(0)	18(0)*	2(0)	2(0)	22(0)	22(0)	22(0)	22(0)
Hornsea	TA21004780	16(0)	18(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Tunstall	TA32203120	17(0)	17(0)*	2(0)	1(0)	20(0)	20(0)	20(0)	20(0)
Withernsea	TA34402810	17(0)	19(0)*	2(0)	2(1)	21(0)	21(0)	21(1)	21(0)

(* Denotes waiver granted because of geographical conditions)

Anglian Region									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Cleethorpes	TA31050860	2(0)	20(0)*	2(1)	4(2)	20(1)	20(0)	20(0)	20(0)
Mablethorpe Town	TF50808540	2(0)	20(0)*	2(0)	4(1)	20(2)†	20(0)	20(0)	20(0)
Sutton-on-sea	TF52258210	2(0)	20(0)*	2(0)	4(0)	20(5)†	20(0)	20(0)	20(0)
Moggs Eye	TF55007760	2(0)	20(0)*	2(0)	1(0)	20(5)†	20(0)	20(0)	20(0)
Anderby	TF55307620	2(0)	20(0)*	2(0)	2(0)	20(6)†	20(0)	20(0)	20(0)
Chapel St Leonard	TF56407220	2(0)	20(0)*	2(0)	4(1)	20(4)†	20(0)	20(0)	20(0)
Ingoldmells South	TF57406855	2(0)	20(0)*	2(0)	2(0)	20(6)†	20(0)	20(0)	20(0)
Skegness	TF57206345	2(0)	20(0)*	2(0)	4(0)	19(4)†	20(0)	20(0)	20(0)
Heacham	TF66303750	2(0)	20(0)*	3(1)	5(0)	13(0)	15(0)	20(10)†	20(0)
Hunstanton Beach	TF67804250	2(0)	20(0)*	3(1)	2(0)	14(0)	15(0)	20(9)†	20(0)
Wells	TF91404560	1(0)	20(0)*	2(0)	3(1)	20(0)	20(0)	20(0)	20(0)
Sheringham	TG16204360	1(0)	18(0)*	2(0)	1(0)	20(0)	20(0)	20(0)	20(0)
Cromer	TG21904250	1(0)	19(0)*	2(0)	1(1)	20(0)	20(0)	20(0)	20(0)
Mundesley	TG31703660	1(0)	19(0)*	2(0)	1(0)	20(1)	20(0)	20(0)	20(0)
Hemsby	TG50901740	1(0)	20(0)*	2(0)	2(0)	19(0)	20(0)	20(0)	20(0)
Caister Point	TG53001200	1(0)	20(0)*	2(0)	2(1)	19(0)	20(0)	20(0)	20(0)
Great Yarmouth North	TG53501050	1(0)	20(0)*	2(0)	2(0)	19(0)	20(0)	20(0)	20(0)
Great Yarmouth Pier	TG53300740	1(0)	20(0)*	2(0)	5(2)	19(1)†	20(0)	20(0)	20(0)
Great Yarmouth South	TG53300640	1(0)	20(0)*	2(0)	5(2)	19(1)†	20(0)	20(0)	20(0)
Gorleston Beach	TG53200310	0(0)	20(0)*	2(1)	5(3)	19(0)	19(0)	19(0)	19(0)

(* Denotes waiver granted because of geographical conditions)

(† Non-complying samples investigated by NRA and found to be due to non-anthropogenic causes)

Section 4 Bathing Waters Survey — 1991 results (United Kingdom)

Compliance with Bathing Water Directive (76/160/EEC): Other Parameters

Anglian Region (contd)									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Lowestoft North	TM55309500	0(0)	19(0)*	2(0)	5(2)	18(0)	18(0)	18(0)	18(0)
Lowestoft South	TM54509170	0(0)	19(0)*	2(0)	2(0)	18(0)	18(0)	18(0)	18(0)
Southwold The Denes	TM50807540	0(0)	20(0)*	2(0)	2(0)	19(0)	19(0)	19(0)	19(0)
Felixstowe North	TM30503430	0(0)	20(0)*	2(0)	2(0)	19(0)	19(0)	19(0)	19(0)
Felixstowe South	TM29703370	0(0)	20(0)*	2(0)	2(1)	19(0)	19(0)	19(0)	19(0)
 Dovercourt	TM25173064	1(0)	20(0)*	2(0)	5(0)	20(0)	20(0)	20(0)	20(0)
Walton	TM25552156	1(0)	20(0)*	2(0)	1(1)	20(0)	20(0)	20(0)	20(0)
Frinton	TM23791941	1(0)	20(0)*	2(0)	1(1)	20(0)	20(0)	20(0)	20(0)
Holland	TM22451765	1(0)	20(0)*	2(1)	2(1)	20(0)	20(0)	20(0)	20(0)
Clacton	TM18791525	1(0)	20(0)*	2(0)	2(1)	20(0)	20(0)	20(0)	20(0)
 Jaywick	TM14851280	1(0)	20(0)*	2(0)	5(0)	20(0)	20(0)	20(0)	20(0)
Brightlingsea	TM07631616	1(0)	20(0)*	2(0)	5(1)	20(0)	20(0)	20(0)	20(0)
West Mersea	TM02271203	1(0)	20(0)*	2(0)	5(1)	20(0)	20(0)	20(0)	20(0)
(* Denotes waiver granted because of geographical conditions)									

Thames Region									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Shoebury East	TQ94508520	1(0)	20(0)*	20(2)	20(13)	20(0)	20(0)	20(1)	20(0)
Southend Thorpe Bay	TQ91108470	1(0)	20(0)*	20(1)	19(14)	20(0)	20(0)	20(0)	20(0)
Southend Westcliff Bay	TQ86458525	1(0)	20(0)*	20(0)	20(14)	20(0)	20(0)	20(0)	20(0)
(* Denotes waiver granted because of geographical conditions)									

Southern Region									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Sheerness	TQ92507500	2(0)	21(0)*	2(0)	2(0)	21(0)	21(0)	21(1)	21(0)
Leysdown	TR03407080	2(0)	21(0)*	2(0)	2(0)	21(0)	21(0)	21(0)	21(0)
West Beach	TR09806600	2(0)	21(0)*	2(0)	2(0)	21(0)	21(0)	21(2)†	21(0)
Herne Bay	TR18606860	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Minnis Bay	TR28606970	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(1)	21(0)
 St Mildred's Bay	TR32807050	2(0)	21(0)*	2(0)	2(0)	21(0)	21(0)	21(1)	21(0)
Margate The Bay	TR34707080	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Margate Fulsam Rock	TR35607150	2(0)	21(0)*	2(0)	2(0)	21(0)*	21(0)	21(0)	21(0)
Joss Bay	TR39907020	2(0)	21(0)*	2(0)	2(0)	21(0)*	21(0)	21(4)†	21(0)
Broadstairs	TR39806770	2(0)	21(0)*	2(1)	2(1)	21(0)	21(0)	21(0)	21(0)
(* Denotes waiver granted because of geographical conditions)									
(† Non-complying samples investigated by NRA and found to be due to non-anthropogenic causes)									

Section 4 Bathing Waters Survey – 1991 results (United Kingdom)

Compliance with Bathing Water Directive (76/160/EEC): Other Parameters

Southern Region (contd)									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Ramsgate	TR37206400	2(0)	21(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Sandwich Bay	TR35805900	3(0)	21(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Deal Castle	TR37805270	3(0)	21(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
St Margaret's Bay	TR36804440	3(0)	21(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Folkestone	TR23703630	3(0)	21(0)*	2(1)	2(2)	21(0)	21(0)	21(0)	21(0)
Sandgate	TR18803480	3(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Hythe	TR16003400	2(0)	21(0)*	2(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Dymchurch	TR11303040	2(0)	21(0)*	2(1)	2(0)	21(0)	21(0)	21(0)	21(0)
St Mary's Bay	TR09302770	2(0)	21(0)*	2(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Littlestone	TR08402390	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Camber	TQ97301840	2(0)	20(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Winchelsea	TQ91201540	2(0)	20(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Hastings	TQ81900920	2(0)	20(0)*	2(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Bexhill	TQ73700680	2(0)	20(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Norman's Bay	TQ68200530	2(0)	20(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Pevensey Bay	TQ65700370	2(0)	20(0)*	2(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Eastbourne	TV61409820	2(0)	19(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Seaford	TV48809820	2(0)	19(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Newhaven	TV44909980	2(0)	19(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Saltdean	TQ38100180	2(0)	19(0)*	2(0)	2(2)	21(0)*	21(0)	21(0)	21(0)
Brighton	TQ32300340	2(0)	19(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Hove	TQ28800430	2(0)	21(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Southwick	TQ24200480	2(0)	21(0)*	2(2)	2(2)	21(0)	21(0)	21(0)	21(0)
South Lancing	TQ18300360	2(0)	21(0)*	2(1)	2(2)	21(0)	21(0)	21(0)	21(0)
Worthing	TQ13900210	2(0)	21(0)*	2(2)	2(1)	21(0)	21(0)	21(0)	21(0)
Littlehampton	TQ04000130	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Middleton-on-sea	SZ98509990	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Bognor Regis	SZ92309850	2(0)	21(0)*	2(1)	2(0)	21(0)	21(0)	21(0)	21(0)
Pagham	SZ89209720	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Selsey	SZ86809370	2(0)	21(0)*	2(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Bracklesham Bay	SZ80509630	2(0)	21(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
West Wittering	SZ76809800	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
West of Eastoke	SZ72909840	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
West Hayling	SZ70509870	2(0)	21(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Eastney	SZ67509880	2(0)	21(0)*	2(1)	2(1)	21(0)	21(0)	21(0)	21(0)
Southsea	SZ65309820	2(0)	21(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Stokes Bay	SZ60009790	2(0)	21(0)*	2(1)	2(2)	21(0)	21(0)	21(0)	21(0)
Lee-on-Solent	SU56200050	2(0)	21(0)*	2(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Hillhead	SU54000220	2(0)	21(0)*	2(1)	2(1)	21(0)	21(0)	21(0)	21(0)
Calshot	SU48100120	2(0)	21(0)*	2(1)	2(1)	21(0)	21(0)	21(0)	21(0)
Lepe	SZ45609850	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Milford-on-sea	SZ28309150	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Christchurch Bay	SZ23909280	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Highcliffe	SZ21609310	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Compton Bay	SZ37708410	2(0)	21(0)*	2(0)	2(0)	21(0)	21(0)	21(1)	21(0)
(* Denotes waiver granted because of geographical conditions)									

Section 4 Bathing Waters Survey — 1991 results (United Kingdom)

Compliance with Bathing Water Directive (76/160/EEC): Other Parameters

Southern Region (contd)									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Totland Bay	SZ32208710	2(0)	21(0)*	2(1)	2(0)	21(0)	21(0)	21(0)	21(0)
Colwell Bay	SZ32808790	2(0)	21(0)*	2(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Gurnard	SZ47709590	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Cowes	SZ48809670	2(0)	21(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Ryde	SZ60109270	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Seagrove	SZ63209120	2(0)	21(0)*	2(0)	2(0)	21(0)	21(0)	21(0)	21(0)
St Helens	SZ63708920	2(0)	21(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Bembridge	SZ65708810	2(0)	21(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Whitecliff Bay	SZ64108620	2(0)	21(0)*	2(1)	2(2)	21(0)	21(0)	21(0)	21(0)
Sandown	SZ60108430	2(0)	21(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
Shanklin	SZ58508110	2(0)	20(0)*	2(0)	2(1)	20(0)	20(0)	20(0)	20(0)
Ventnor	SZ56207730	2(0)	21(0)*	2(0)	2(2)	21(0)	21(0)	21(0)	21(0)
(* Denotes waiver granted because of geographical conditions)									

Wessex Region — South Coast									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Christchurch									
Highcliffe Castle	SZ20009290	11(0)	22(0)*	2(0)	0(0)	22(3)†	22(0)	22(3)†	22(0)
Christchurch Friar's Cliff	SZ19209252	11(0)	22(0)*	2(0)	0(0)	22(3)†	22(0)	22(2)†	22(0)
Christchurch Avon Beach	SZ18889223	11(0)	22(0)*	2(0)	0(0)	22(3)†	22(0)	22(2)†	22(0)
Christchurch									
Mudford Sandbank East	SZ18259121	11(0)	22(0)*	2(0)	2(0)	22(2)†	22(0)	22(2)†	22(0)
Bournemouth									
Hengistbury East	SZ17009060	11(0)	22(0)*	1(0)	0(0)	22(5)†	22(0)	22(4)†	22(0)
Bournemouth Pier	SZ08859065	12(0)	23(0)*	2(0)	2(0)	23(4)†	23(0)	23(2)†	23(0)
Poole Shore Rd Sandbanks	SZ05108830	12(0)	26(0)*	2(0)	0(0)	26(2)†	26(0)	26(1)	26(0)
Poole Harbour Sandbanks	SZ04908850	12(0)	27(0)*	2(0)	0(0)	27(0)	27(0)	27(1)	27(1)
Poole Harbour Lake	SY98329040	12(0)	25(0)*	2(0)	2(0)	25(5)†	25(0)	25(14)†	25(0)
Poole Harbour									
Rockley Sands	SY97209080	12(0)	26(0)*	2(0)	0(0)	26(6)†	26(0)	26(13)†	26(1)
Shell Bay North	SZ03708660	12(0)	25(0)*	1(0)	0(0)	25(2)†	25(0)	25(0)	25(0)
Studland Knoll House	SZ03488353	12(0)	25(0)*	2(0)	0(0)	25(1)	25(0)	25(2)†	25(0)
Swanage Central	SZ03297910	13(0)	25(0)*	2(0)	2(0)	25(5)†	25(0)	25(1)	25(0)
Kimmeridge Bay	SY90707905	12(0)	26(0)*	2(0)	0(0)	26(1)	26(0)	26(9)†	26(0)
Lulworth Cove	SY82477995	10(0)	26(0)*	2(0)	2(0)	26(6)†	26(0)	26(0)	26(0)
Durdle Door East	SY80808030	10(0)	26(0)*	2(0)	0(0)	26(2)†	26(0)	26(1)	26(0)
Durdle Door West	SY80408030	10(0)	26(0)*	2(0)	0(0)	26(1)	26(0)	26(2)†	26(0)
Ringstead Bay	SY75198132	10(0)	26(0)*	2(0)	0(0)	26(4)†	26(0)	26(1)	26(0)
Bowleaze Cove	SY70428189	10(0)	26(0)*	2(0)	0(0)	26(11)†	26(0)	26(1)	26(0)
Church Ope Cove	SY69767100	8(0)	24(0)*	2(0)	0(0)	24(2)†	24(0)	24(1)	24(0)
(* Denotes waiver granted because of geographical conditions)									
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Section 4 Bathing Waters Survey — 1991 results (United Kingdom)

Compliance with Bathing Water Directive (76/160/EEC): Other Parameters

Wessex Region — South Coast (contd)									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Weymouth Lodmoor	SY68806710	10(0)	25(0)*	2(0)	0(0)	25(3)†	25(0)	25(0)	25(0)
Weymouth Central	SY68107940	10(0)	24(0)*	2(0)	2(1)	24(4)†	24(0)	24(2)†	24(0)
Portland Harbour									
Castle Cove	SY67607750	8(0)	24(0)*	2(0)	0(0)	24(0)	24(0)	24(1)	24(0)
Portland Harbour									
Sandsfoot Castle	SY67307720	7(0)	23(0)*	2(0)	2(0)	23(0)	23(0)	23(1)	23(0)
West Bay (West)	SY45909040	9(0)	24(0)*	1(0)	0(0)	24(2)†	24(0)	24(1)	24(0)
Eypemouth	SY44689100	9(0)	24(0)*	2(0)	0(0)	24(4)†	24(0)	24(1)	24(0)
Seatown	SY41879165	9(0)	23(0)*	1(0)	0(0)	24(3)†	24(0)	24(1)	24(0)
Charmouth West	SY36309300	11(0)	26(0)*	2(0)	1(0)	26(6)†	26(0)	26(1)	26(0)
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(† Non-complying samples investigated by NRA and found to be due to non-anthropogenic causes)									

South West Region									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Lyme Regis Church Beach	SY34369212	20(0)	0(0)*	2(0)	2(1)	20(7)†	20(1)	20(0)	20(0)
Lyme Regis Cobb	SY33909185	20(0)	0(0)*	2(0)	2(0)	20(7)†	20(0)	20(0)	20(1)
Seaton (Devon)	SY24508985	20(0)	0(0)*	2(0)	2(1)	20(6)†	20(0)	20(0)	20(0)
Beer	SY23158910	20(0)	0(0)*	2(0)	2(1)	20(5)†	20(2)	20(1)	20(0)
Sidmouth Town	SY12708720	20(0)	0(0)*	2(1)	2(1)	20(8)†	20(0)	20(1)	20(1)
Sidmouth Jacobs Ladder	SY11908695	20(0)	0(0)*	2(1)	2(0)	20(7)†	20(0)	20(1)	20(0)
Ladram Bay	SY09728515	20(0)	0(0)*	2(0)	2(0)	20(7)†	20(1)	20(0)	20(0)
Budleigh Salterton	SY06958190	20(0)	0(0)*	2(0)	2(1)	20(7)†	20(0)	20(0)	20(0)
Sandy Bay	SY03357980	20(0)	0(0)*	2(0)	2(1)	20(7)†	20(0)	20(0)	20(0)
Exmouth	SY00987995	20(0)	0(0)*	2(0)	2(1)	20(1)	20(0)	20(0)	20(0)
Dawlish Warren	SX98307875	20(0)	0(0)*	2(0)	2(0)	19(6)†	19(0)	19(0)	19(0)
Dawlish Town	SX96557680	20(0)	0(0)*	2(0)	2(0)	20(6)†	20(0)	20(0)	20(0)
Dawlish Coryton Cove	SX96117606	20(0)	0(0)*	2(0)	2(0)	20(9)†	20(0)	20(1)	20(0)
Teignmouth Holcombe	SX95657461	20(0)	0(0)*	2(0)	2(0)	19(9)†	20(0)	20(1)	20(0)
Teignmouth Town	SX94307285	20(0)	0(0)*	2(0)	2(0)	20(7)†	20(0)	20(0)	20(0)
Shaldon	SX93507230	20(0)	0(0)*	2(0)	2(0)	20(1)	20(0)	20(2)†	20(0)
Ness Cove	SX93857170	20(0)	0(0)*	2(0)	2(1)	20(9)†	20(0)	20(1)	20(0)
Maidencombe	SX92786850	20(0)	0(0)*	2(0)	2(1)	19(4)†	20(0)	20(7)†	20(0)
Warcombe	SX92626730	20(0)	0(0)*	2(0)	2(0)	20(5)†	20(0)	20(3)†	20(0)
Oddicombe	SX92656585	20(0)	0(0)*	2(0)	2(1)	20(5)†	20(0)	20(3)†	20(0)
Babbacombe	SX93006545	20(0)	0(0)*	2(0)	2(0)	20(2)†	20(0)	20(1)	20(0)
Redgate	SX93506480	20(0)	0(0)*	2(1)	2(0)	20(2)†	20(0)	20(5)†	20(0)
Meadfoot	SX93056305	20(0)	0(0)*	2(0)	2(0)	20(5)†	20(0)	20(7)†	20(0)
Beacon Cove	SX91956307	20(0)	0(0)*	2(0)	2(0)	20(1)	20(0)	20(0)	20(0)
Torre Abbey	SX90956351	20(0)	0(0)*	2(0)	1(0)	20(2)†	20(0)	20(1)	20(0)
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Compliance with Bathing Water Directive (76/160/EEC): Other Parameters

South West Region (contd)									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Hollicombe	SX89806215	20(0)	0(0)*	2(0)	2(0)	20(1)	20(1)	20(0)	20(0)
Paignton Preston Sands	SX89646177	20(0)	0(0)*	2(0)	1(0)	20(3)†	20(0)	20(1)	20(0)
Paignton Paignton Sands	SX89496063	20(0)	0(0)*	2(0)	2(0)	20(4)†	20(0)	20(0)	20(0)
Goodrington	SX89355940	20(0)	0(0)*	2(0)	1(0)	20(4)†	20(0)	20(0)	20(0)
Broadsands	SX89705745	20(0)	0(0)*	2(1)	1(0)	20(3)†	20(0)	20(0)	20(0)
Shoalstone	SX93205662	20(0)	0(0)*	2(0)	1(0)	20(0)	20(0)	20(1)	20(0)
St Mary's Bay	SX93205510	20(0)	0(0)*	2(0)	2(0)	20(10)†	20(0)	20(2)†	20(0)
Dartmouth Castle and Sugary Cove	SX88655020	19(0)	0(0)*	2(0)	2(1)	20(4)†	20(0)	20(1)	20(0)
Blackpool Sands	SX85504785	19(0)	0(0)*	2(0)	2(0)	20(1)	20(0)	20(2)†	20(0)
Slapton Sands Monument	SX82954430	19(0)	0(0)*	2(0)	2(0)	20(1)	20(0)	20(1)	20(0)
Slapton Sands Torcross	SX82354195	19(0)	0(0)*	2(0)	2(0)	20(1)	20(0)	20(1)	20(0)
Mill Bay	SX74073825	19(0)	0(0)*	2(0)	2(0)	20(1)	20(0)	20(0)	20(0)
Salcombe North Sands	SX73103820	19(0)	0(0)*	2(0)	2(1)	20(3)†	20(0)	20(0)	20(0)
Salcombe South Sands	SX72853775	19(0)	0(0)*	2(0)	2(2)	20(2)†	20(1)	20(0)	20(0)
Hope Cove	SX67553975	19(0)	0(0)*	2(0)	2(0)	20(3)†	20(0)	20(1)	20(0)
Thurlestone South	SX67654170	19(0)	0(0)*	2(0)	2(1)	20(7)†	20(0)	20(2)†	20(0)
Thurlestone North	SX67404210	19(0)	0(0)*	2(0)	2(0)	20(5)†	20(1)	20(1)	20(1)
Bantham	SX66234380	19(0)	0(0)*	2(0)	2(0)	20(1)	20(0)	20(1)	20(0)
Bigbury-on-Sea South	SX65104415	20(0)	0(0)*	2(0)	2(0)	19(4)†	19(0)	19(1)†	19(0)
Bigbury-on-Sea North	SX64954430	20(0)	0(0)*	2(0)	2(0)	19(5)†	19(0)	19(3)†	19(0)
Challaborough	SX64924480	20(0)	0(0)*	2(0)	2(0)	18(7)†	19(0)	19(3)†	19(0)
Mothecombe	SX61054734	20(0)	0(0)*	2(0)	2(0)	19(5)†	19(0)	19(1)†	19(0)
Wembury	SX51604850	20(0)	0(0)*	2(0)	2(0)	19(6)†	19(0)	19(1)†	19(0)
Bovisand	SX49305050	20(0)	0(0)*	2(0)	2(0)	19(4)†	19(0)	19(0)	19(0)
Plymouth Hoe East	SX47805370	20(0)	0(0)*	2(1)	1(0)	19(6)†	19(2)	19(2)†	18(0)
Plymouth Hoe West	SX47505370	20(0)	0(0)*	2(1)	2(1)	19(7)†	19(2)	19(1)†	18(0)
Portwrinkle	SX35905380	4(0)	19(0)*	2(0)	2(0)	20(1)	20(0)	20(1)	20(0)
Downderry	SX31405380	4(0)	19(0)*	2(0)	2(0)	20(2)†	20(0)	20(1)	20(0)
Seaton (Cornwall)	SX30305430	4(0)	19(0)*	2(0)	2(0)	20(2)†	20(0)	20(1)	20(0)
Millendreath	SX26805410	4(0)	19(0)*	2(0)	2(1)	20(2)†	20(0)	20(1)	20(0)
East Looe	SX25705320	4(0)	19(0)*	2(0)	2(0)	20(2)†	20(0)	20(0)	20(0)
Readymoney	SX11805110	4(0)	19(0)*	2(0)	2(1)	20(2)†	20(0)	20(0)	20(0)
Polkerris	SX09105230	4(0)	19(0)*	2(0)	2(0)	20(7)†	20(0)	20(0)	20(0)
Par	SX08305330	4(0)	19(0)*	2(0)	2(0)	20(10)†	20(0)	20(1)	20(0)
Crinnis Golf Links	SX06305220	4(0)	19(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Crinnis Leisure Centre	SX05605210	4(0)	19(0)*	2(0)	2(0)	20(0)	20(0)	20(1)	20(0)
Charlestown	SX04205160	4(0)	19(0)*	2(0)	2(1)	20(1)	20(0)	20(1)	20(0)
Duporth	SX03505120	4(0)	20(0)*	2(0)	2(0)	20(1)	20(0)	20(0)	20(0)
Porthpean	SX03205070	4(0)	19(0)*	2(0)	2(0)	20(1)	20(0)	20(0)	20(0)
Pentewan	SX01804670	4(0)	19(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Polstreath	SX01704540	4(0)	20(0)*	2(1)	2(0)	20(0)	20(0)	20(0)	20(0)
Port Mellon	SX01604390	4(0)	20(0)*	2(0)	2(0)	20(1)	20(0)	20(0)	20(0)
Gorran Haven Little Perhaver	SX01304170	4(0)	20(0)*	2(0)	2(0)	20(1)	20(0)	20(0)	20(0)
Gorran Haven (Vault)	SX01004080	4(0)	19(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Porthluney	SW97304130	4(0)	20(0)*	2(0)	2(0)	20(1)	20(0)	20(3)†	20(0)
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South West Region (contd)									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Pendower	SW90503830	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Gyllyngvase	SW80903160	4(0)	20(0)*	2(0)	2(0)	20(3)†	20(0)	20(0)	20(0)
Swanpool	SW80303130	4(0)	20(0)*	2(0)	2(1)	20(4)†	20(1)	20(0)	20(0)
Maen Porth	SW79002960	4(0)	20(0)*	2(0)	2(0)	20(2)†	20(0)	20(0)	20(0)
Porthallow	SW79702330	4(0)	20(0)*	2(0)	2(0)	20(2)†	20(0)	20(0)	20(0)
Porthoustock	SW80702170	4(0)	20(0)*	2(0)	2(0)	20(1)	20(0)	20(0)	20(0)
Coverack	SW78301840	4(0)	20(0)*	2(0)	2(0)	20(0)	20(3)	20(1)	20(0)
Kennack Sands	SW73401650	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(2)†	20(0)
Pollurian Cove	SW66801870	4(0)	20(0)*	2(0)	2(1)	20(0)	20(0)	20(3)†	20(0)
Poldhu Cove	SW66501980	4(0)	20(0)*	2(0)	2(1)	20(1)	20(0)	20(2)†	20(0)
Gunwalloe Cove	SW65402250	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(3)†	20(0)
Porthleven West	SW63202530	4(0)	20(0)*	2(0)	2(0)	20(1)	20(0)	20(0)	20(0)
Praa Sands East	SW58502760	4(0)	20(0)*	2(0)	2(0)	20(2)†	20(0)	20(3)†	20(0)
Praa Sands West	SW57702810	4(0)	20(0)*	2(0)	2(1)	20(2)†	20(0)	20(3)†	20(0)
Perran Sands	SW53902930	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Mounts Bay L Holgus	SW51303100	4(0)	20(0)*	2(0)	2(1)	20(1)	20(0)	20(1)	20(0)
Mounts Bay Heliport	SW48503110	4(0)	20(0)*	2(0)	2(2)	20(9)†	20(2)	20(0)	20(0)
Mounts Bay Penzance	SW47502980	4(0)	20(0)*	2(0)	2(1)	20(6)†	20(0)	20(0)	20(0)
Mounts Bay Wherry Town	SW46702940	4(0)	20(0)*	2(0)	2(2)	20(13)†	20(0)	20(0)	20(0)
Porthcurno	SW38702230	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Sennen	SW35522645	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(1)	20(0)
Porthmeor	SW31504103	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	19(0)
Porth Gwidden	SW52204110	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Porthminster	SW52204025	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Carbis Bay Station Beach	SW52803890	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(1)	20(0)
Carbis Bay									
Porth Kidney Sands	SW54003850	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
The Towans (Hayle)	SW56303950	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
The Towans (Godrevy)	SW58104170	4(0)	20(0)*	2(0)	2(0)	19(1)†	19(0)	19(0)	19(0)
Portreath	SW65304550	4(0)	20(0)*	2(0)	2(0)	20(1)	20(0)	20(0)	20(0)
Porthtowan	SW68904790	4(0)	20(0)*	2(0)	2(0)	20(2)†	20(0)	20(7)†	20(0)
Trevaunance Cove	SW72305170	4(0)	20(0)*	2(0)	2(0)	20(3)†	20(0)	20(1)	20(0)
Perranporth Village End	SW75705480	4(0)	19(0)*	2(0)	2(0)	20(1)	20(0)	20(4)†	20(0)
Perranporth Penhale Sands	SW76205700	4(0)	20(0)*	2(0)	2(0)	20(1)	20(0)	20(5)†	20(0)
Holywell Bay	SW76505950	4(0)	19(0)*	2(0)	2(0)	20(1)	20(0)	20(4)†	20(0)
Crantock	SW78406080	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(6)†	20(0)
Fistral	SW79606230	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(3)†	20(0)
Towan	SW81006205	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Watergate	SW84106490	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(5)†	20(0)
Mawgan Porth	SW84806740	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(5)†	20(0)
Treyarnon Bay	SW85707390	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(2)†	20(0)
Constantine Bay	SW85807480	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(5)†	20(0)
Mother Jvey's Bay	SW86307600	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(2)†	20(0)
Harlyn Bay	SW87707550	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(2)†	20(0)
Trevone Bay	SW89207610	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(2)†	20(0)
Rock	SW93607550	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(4)†	20(0)
(* Denotes waiver granted because of geographical conditions)									
(† Non-complying samples investigated by NRA and found to be due to non-anthropogenic causes)									

Section 4 Bathing Waters Survey — 1991 results (United Kingdom)

Compliance with Bathing Water Directive (76/160/EEC): Other Parameters

South West Region (contd)									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Daymer Bay	SW92807760	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(3)†	20(0)
Polzeath	SW93607920	4(0)	20(0)*	2(0)	2(0)	20(0)	20(0)	20(5)†	20(0)
Widemouth Sand	SS19800240	20(0)	0(0)*	2(0)	2(0)	20(7)†	19(1)	19(1)†	19(0)
Bude Summerleaze	SS20400660	20(0)	0(0)*	2(0)	1(0)	19(7)†	20(1)	20(2)†	19(0)
Bude Crooklets	SS20300720	20(0)	0(0)*	2(0)	2(0)	20(8)†	20(1)	20(3)†	20(0)
 Bude Sandy Mouth	SS20200990	20(0)	0(0)*	2(0)	1(0)	20(9)†	20(0)	20(2)†	20(0)
Hartland Quay	SS22302485	20(0)	0(0)*	2(0)	3(0)	20(8)†	20(0)	20(2)†	20(0)
Westward Ho!	SS43252940	20(0)	0(0)*	2(1)	3(0)	20(9)†	20(0)	20(0)	20(0)
Instow	SS47173044	20(0)	0(0)*	2(0)	3(2)	20(4)†	20(1)	20(3)†	20(0)
Saunton Sands	SS44553760	20(0)	0(0)*	2(0)	2(0)	20(12)†	20(0)	20(2)†	20(1)
 Croyde Bay	SS43473930	20(0)	0(0)*	2(0)	2(0)	20(10)†	20(0)	20(0)	20(0)
Woolacombe Putsborough	SS44754085	20(0)	0(0)*	2(0)	2(0)	19(4)†	19(0)	19(0)	19(0)
Woolacombe Village	SS45624370	20(0)	0(0)*	2(0)	2(1)	20(5)†	20(0)	20(0)	20(0)
Ilfracombe Tunnels Beach	SS51454780	20(0)	0(0)*	2(0)	2(0)	20(11)†	20(0)	20(1)	20(0)
Ilfracombe Capstone (Wildersmouth)	SS51824790	20(0)	0(0)*	2(1)	2(0)	20(14)†	20(0)	20(0)	20(0)
 Ilfracombe Hele	SS53554792	20(0)	0(0)*	2(0)	2(0)	19(14)†	20(0)	20(0)	20(0)
Combe Martin	SS57724732	20(0)	0(0)*	2(0)	2(0)	20(15)†	20(0)	20(1)	20(0)
Lynmouth	SS72504975	20(0)	0(0)*	2(0)	2(0)	19(10)†	20(1)	20(0)	20(0)
(* Denotes waiver granted because of geographical conditions)									
(† Non-complying samples investigated by NRA and found to be due to non-anthropogenic causes)									

Wessex Region — North Coast									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Porlock Weir	SS86404790	20(0)	24(0)*	1(0)	1(0)	24(0)*	24(1)	24(0)	24(0)
Minehead Terminus	SS97304650	20(0)	24(0)*	2(0)	1(1)	24(0)*	24(0)	24(1)	24(0)
Dunster North West	SS99704550	16(0)	20(0)*	1(0)	2(0)	20(0)*	20(2)	20(3)†	20(0)
Blue Anchor West	ST02304350	19(0)	24(0)*	2(0)	0(0)	23(0)*	23(0)	23(0)	23(0)
Burnham Jetty	ST30204880	18(0)	24(0)*	2(0)	1(1)	23(0)*	23(2)	23(3)†	23(2)
 Berrow North of Unity Farm	ST29305450	19(0)	24(0)*	1(0)	0(0)	24(0)*	24(1)	24(14)†	24(0)
Brean	ST29605850	18(0)	24(0)*	1(0)	0(0)	23(0)*	23(1)	23(4)†	23(1)
Weston-s-Mare									
Uphill Slipway	ST31205880	13(0)	26(0)*	1(0)	0(0)	26(0)*	26(0)	26(5)†	26(1)
Weston-s-Mare Grand Pier	ST31706150	14(0)	26(0)*	2(0)	1(0)	26(0)*	26(0)	26(12)†	26(1)
Weston-s-Mare Sand Bay	ST33006350	12(0)	25(0)*	1(0)	0(0)	25(0)*	25(2)	25(3)†	25(0)
 Clevedon Swimming Pool	ST39807120	12(0)	26(0)*	0(0)	0(0)	26(0)*	26(1)	26(1)	26(1)
(* Denotes waiver granted because of geographical conditions)									
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Section 4 Bathing Waters Survey — 1991 results (United Kingdom)

Compliance with Bathing Water Directive (76/160/EEC): Other Parameters

Welsh Region									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Jacksons Bay Barry	ST12206657	21(0)	0(0)*	5(3)	2(0)	20(0)	21(0)	21(0)	21(0)
Whitmore Bay Barry	ST11456625	21(0)	0(0)*	5(1)	2(0)	21(0)	21(0)	21(0)	21(0)
Cold Knap Barry	ST09656640	21(0)	0(0)*	5(1)	2(1)	21(0)	21(0)	21(0)	21(0)
Southerndown	SS88407290	22(0)	0(0)*	5(0)	2(0)	22(0)	22(0)	22(0)	22(0)
Trecco Bay Porthcawl	SS83107630	22(0)	0(0)*	5(1)	2(0)	22(0)	22(0)	22(0)	22(0)
Sandy Bay Porthcawl	SS82407650	22(0)	0(0)*	5(0)	2(0)	22(0)	22(0)	22(0)	22(0)
Rest Bay Porthcawl	SS80007790	22(0)	0(0)*	5(1)	2(0)	22(0)	22(0)	22(0)	22(0)
Aberafan	SS73908960	22(0)	0(0)*	5(1)	2(0)	22(0)	22(0)	22(0)	22(0)
Swansea Bay	SS64409210	21(0)	0(0)*	5(2)	2(1)	21(0)	22(0)	22(0)	22(0)
Bracelet Bay	SS63008710	21(0)	0(0)*	5(1)	2(1)	21(0)	22(0)	22(0)	22(0)
Limeslade Bay	SS62508700	21(0)	0(0)*	5(2)	2(0)	21(0)	22(0)	22(0)	22(0)
Langland Bay	SS60608710	21(0)	0(0)*	5(2)	2(1)	21(0)	22(0)	22(0)	22(0)
Caswell Bay	SS59108740	21(0)	0(0)*	5(1)	2(1)	21(0)	22(0)	22(0)	22(0)
Oxwich Bay	SS50708620	21(0)	0(0)*	5(0)	2(0)	21(0)	22(0)	22(0)	22(0)
Port Eynon Bay	SS47208480	21(0)	0(0)*	5(0)	2(1)	21(0)	22(0)	22(0)	22(0)
Rhossili	SS41409000	21(0)	0(0)*	5(0)	2(1)	21(0)	22(0)	22(0)	22(0)
Pembrey	SS40009980	21(0)	0(0)*	5(0)	2(0)	21(0)	22(0)	22(0)	22(0)
Pendine	SN23800740	20(0)	0(0)*	5(1)	2(0)	20(0)	19(0)	19(0)	20(0)
Amroth	SN16700680	20(0)	0(0)*	5(1)	2(0)	19(0)	20(0)	19(0)	20(0)
Saundersfoot	SN14100470	20(0)	0(0)*	5(1)	2(1)	20(0)	19(0)	20(0)	20(0)
Tenby North	SN13450080	20(0)	0(0)*	5(0)	2(1)	19(0)	19(0)	19(0)	19(0)
Tenby South	SS13259985	20(0)	0(0)*	5(1)	2(0)	19(0)	20(0)	20(0)	20(0)
Broadhaven	SM86101380	21(0)	0(0)*	5(1)	2(2)	20(0)	21(0)	21(0)	21(0)
Newgale	SM84602170	21(0)	0(0)*	5(1)	2(0)	20(0)	21(0)	21(0)	21(0)
Whitesands	SM73002700	21(0)	0(0)*	5(0)	2(1)	20(0)	21(0)	21(0)	21(0)
Newport	SN05304070	21(0)	0(0)*	5(0)	2(0)	18(0)	21(0)	21(0)	21(0)
Traeth Gwyn New Quay	SN39805970	20(0)	0(0)*	5(1)	2(0)	21(0)	21(0)	21(0)	21(0)
Aberystwyth South	SN57908140	21(0)	0(0)*	5(1)	2(0)	21(0)	21(0)	21(0)	21(0)
Aberystwyth North	SN58308220	21(0)	0(0)*	5(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Borth	SN60609010	21(0)	0(0)*	5(0)	2(0)	20(0)	20(0)	21(0)	21(0)
Aberdyfi	SN60729580	21(0)	0(0)*	5(1)	2(0)	21(0)	21(0)	21(0)	21(0)
Tywyn	SH57670032	21(0)	0(0)*	5(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Fairbourne	SH60911307	21(0)	0(0)*	5(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Barmouth	SH60841590	21(0)	0(0)*	5(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Llandanwg	SH56692818	21(0)	0(0)*	5(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Harlech	SH56763148	21(0)	0(0)*	5(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Morfa Bychan	SH54213595	21(0)	0(0)*	5(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Criccieth	SH50333807	21(0)	0(0)*	5(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Pwllheli	SH37103407	21(0)	0(0)*	5(1)	2(0)	21(0)	21(0)	21(0)	21(0)
Abersoch	SH31682772	21(0)	0(0)*	5(0)	2(0)	21(0)	21(0)	21(0)	21(0)
Morfa Dinlle	SH43495669	23(0)	0(0)*	5(0)	2(0)	23(0)	23(0)	23(0)	23(0)
Rhosneigr	SH32377212	22(0)	0(0)*	5(0)	2(0)	22(0)	22(0)	22(0)	22(0)
Trearddur Bay	SH25567891	22(0)	0(0)*	5(0)	2(0)	22(0)	22(0)	22(0)	22(0)
Benllech	SH52688256	21(0)	0(0)*	5(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Llandudno West Shore	SH76558165	22(0)	0(0)*	5(0)	2(2)	22(0)	22(0)	22(0)	22(0)
Llandudno North Shore	SH79188227	22(0)	0(0)*	5(0)	2(0)	22(0)	22(0)	22(0)	22(0)
Colwyn Bay	SH85847917	22(0)	0(0)*	5(0)	2(1)	22(0)	22(0)	22(0)	22(0)
Kinmel Bay (Sandy Cove)	SH97808060	22(0)	0(0)*	5(0)	2(0)	22(0)	22(0)	22(0)	22(0)
Rhyl	SJ00208260	22(0)	0(0)*	5(1)	2(1)	22(0)	21(0)	22(0)	22(0)
Prestatyn	SJ05408390	22(0)	0(0)*	5(0)	2(1)	22(0)	22(0)	22(0)	22(0)
West Kirby	SJ21008680	22(0)	0(0)*	5(0)	1(0)	22(0)	22(0)	22(0)	22(0)

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Compliance with Bathing Water Directive (76/160/EEC): Other Parameters

North West Region									
	National Grid Reference	pH	Trans- parency	Salmo- nella	Entero- Viruses	Colour	Mineral Oils	Surface Active Substances	Phenols
Bathing Water:		Number of Observations			(Number of Failures)				
Meols	SJ23009060	2(0)	0(0)*	2(0)	2(0)	20(0)	20(0)	20(2)†	20(0)
Moreton	SJ25709180	2(0)	0(0)*	2(0)	2(1)	20(0)	20(0)	20(0)	20(0)
New Brighton	SJ28709370	2(0)	0(0)*	2(0)	2(1)	20(0)	20(1)	20(0)	20(0)
Formby	SD27701000	2(0)	0(0)*	2(0)	2(0)	20(0)	20(0)	20(1)	20(0)
Ainsdale	SD29701290	2(0)	0(0)*	2(0)	2(2)	20(0)	20(0)	20(0)	20(0)
Southport	SD32201790	2(0)	0(0)*	2(0)	2(2)	20(0)	20(0)	20(2)†	20(0)
St Annes	SD31802830	1(0)	0(0)*	2(0)	2(1)	20(0)	20(0)	20(3)†	20(0)
St Annes North	SD30403050	1(0)	0(0)*	2(0)	2(1)	20(0)	20(0)	20(3)†	20(0)
Blackpool South	SD30403380	1(0)	0(0)*	2(0)	2(2)	21(0)	21(0)	21(2)†	21(0)
Blackpool Central	SD30603560	1(0)	0(0)*	2(0)	2(2)	21(0)	21(0)	21(1)	21(0)
Blackpool North	SD30503640	1(0)	0(0)*	2(0)	2(2)	21(0)	21(0)	21(2)†	21(0)
Bispham	SD30703970	1(0)	0(0)*	2(0)	2(1)	21(0)	21(0)	21(1)	21(0)
Cleveleys	SD31204330	1(0)	0(0)*	2(0)	2(2)	20(0)	20(0)	20(2)†	20(0)
Fleetwood	SD33604850	1(0)	0(0)*	2(0)	2(2)	20(0)	20(0)	20(1)	20(0)
Heysham - Half Moon Bay	SD41306180	1(0)	0(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Morecambe South	SD42206360	1(0)	0(0)*	2(0)	2(1)	21(0)	21(0)	21(1)	21(0)
Morecambe North	SD44106500	1(0)	0(0)*	2(0)	2(1)	21(0)	21(0)	21(0)	21(0)
Bardsea	SD30007400	1(0)	0(0)*	2(0)	2(2)	20(1)	20(0)	20(2)†	20(0)
Aldingham	SD28307090	1(0)	0(0)*	2(0)	2(0)	20(0)	20(0)	20(1)	20(0)
Newbiggin	SD27306940	1(0)	0(0)*	2(0)	2(0)	19(0)	19(0)	19(0)	19(0)
Walney Biggar Bank	SD17806730	1(0)	0(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Walney Sandy Gap	SD17506810	1(0)	0(0)*	2(0)	2(2)	19(0)	19(0)	19(0)	19(0)
Walney West Shore	SD17007000	1(0)	0(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Roan Head	SD19807580	1(0)	0(0)*	2(0)	2(2)	20(0)	20(0)	20(1)	20(0)
Askam-in-Furness	SD20907820	1(0)	0(0)*	2(0)	2(1)	20(0)	20(0)	20(1)	20(0)
Haverigg	SD16007780	1(0)	0(0)*	2(0)	2(1)	20(0)	20(0)	20(0)	20(0)
Silecroft	SD12008120	1(0)	0(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
Seascale	NY03400100	1(0)	0(0)*	2(0)	2(0)	20(0)	20(0)	20(0)	20(0)
St Bees	NX95901170	1(0)	0(0)*	2(0)	2(1)	20(0)	20(0)	20(0)	20(0)
Allonby South	NY06604060	1(0)	0(0)*	2(0)	2(1)	20(4)†	20(0)	20(4)†	20(0)
Allonby	NY07804240	1(0)	0(0)*	2(0)	2(2)	20(4)†	20(0)	20(4)†	20(0)
Silloth	NY09405280	1(0)	0(0)*	2(0)	2(1)	20(3)†	20(0)	20(6)†	20(0)
Skinburness	NY12605650	1(0)	0(0)*	2(0)	2(1)	20(2)†	20(0)	20(3)†	20(1)

(* Denotes waiver granted because of geographical conditions)
 († Non-complying samples investigated by NRA and found to be due to non-anthropogenic causes)

APPENDIX B — ADDRESSES OF NRA NATIONAL AND REGIONAL OFFICES

National Headquarters

National Rivers Authority
Headquarters
Eastbury House
30-34 Albert Embankment
London
SE1 7TL

Tel: 071-820 0101
Fax: 071-820 1603

National Rivers Authority
Rivers House
Waterside Drive
Aztec West
Almondsbury
Bristol BS12 4UD

Tel: 0454 624400
Fax: 0454 624409

Regional Offices

National Rivers Authority
Anglian Region
Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough
PE2 5ZR

Tel: 0733 371811
Fax: 0733 231840

National Rivers Authority
North West Region
PO Box 12
Richard Fairclough House
Knutsford Road
Warrington
WA4 1HG

Tel: 0925 53999
Fax: 0925 415961

National Rivers Authority
Southern Region
Guildbourne House
Chatsworth Road
Worthing, West Sussex
BN11 1LD

Tel: 0903 820692
Fax: 0903 821832

National Rivers Authority
Thames Region
Kings Meadow House
Kings Meadow Road
Reading
RG1 8DQ

Tel: 0734 535000
Fax: 0734 500388

National Rivers Authority
Wessex Region
Rivers House
East Quay, Bridgewater
Somerset
TA6 4YS

Tel: 0278 457333
Fax: 0278 452985

National Rivers Authority
Northumbrian Region
Eldon House
Regent Centre
Gosforth
Newcastle upon Tyne
NE3 3UD

Tel: 091-213 0266
Fax: 091 284 5069

National Rivers Authority
Severn Trent Region
Sapphire East
550 Streetsbrook Road
Solihull
B91 1QT

Tel: 021-7112324
Fax: 021 7115824

National Rivers Authority
South West Region
Manley House
Kestrel Way
Exeter EX2 7LQ

Tel: 0392 444000
Fax: 0392 444238

National Rivers Authority
Welsh/Cymru Region
Rivers House/Plas-yr-Afon
St. Mellons Business Park
St. Mellons
Cardiff
CF3 0LT

Tel: 0222 798555
Fax: 0222 770088

National Rivers Authority
Yorkshire Region
21 Park Square South
Leeds
LS1 2QG

Tel: 0532 440191
Fax: 0532 461889

APPENDIX C – TIDY BRITAIN GROUP – EUROPEAN BLUE FLAG CRITERIA 1992

EUROPEAN BLUE FLAG

CRITERIA FOR 1992

The European Blue Flag for beaches is awarded annually and is only valid for one year. To be eligible for the Blue Flag a bathing beach has to fulfil all requirements. The Blue Flag should be removed whilst any criterion is no longer satisfied.

WATER QUALITY

- 1 The water must comply with the Guideline value of the appropriate microbiological parameters of the EC Bathing Water Directive 76/160/EC.
- 2 No industrial or sewage discharges affecting the beach area.

BEACH AND INTERTIDAL AREA

- 3 No gross pollution by sewage related or other waste including glass and litter and no discharge of industrial or urban waste.
- 4 No algal or other vegetation materials accumulating or decaying.
- 5 No oil pollution.

MANAGEMENT

- 6 The beach must be actively managed by the owners (local authority or private) as a tourist resort.
- 7 Local emergency plans to cope with pollution incidents.
- 8 Easy and safe access to the beach for all including disabled people where this is possible.
- 9 Prohibition of unauthorised driving, dumping and camping.
- 10 Manage the conflicting and incompatible needs of different users e.g. zoning for swimmers, windsurfers, nature conservation.
- 11 Dogs must be banned throughout the summer season.
- 12 A source of drinking water.
- 13 Public telephones within easy access to the beach.
- 14 Clean and regularly maintained toilet facilities.
- 15 All buildings and equipment must be maintained to a high standard and there must be safe confinement of all construction work which must not detract from the enjoyment of the beach user.

CLEANSING

- 16 Provide regular and adequate cleansing of the beach.
- 17 Litter bins in adequate numbers, properly secured and regularly maintained/emptied.

SAFETY

- 18 Safe bathing under all normal weather conditions.
- 19 Life guard(s) on duty during the summer season and/or adequate safety provision including lifesaving equipment.
- 20 Clearly signposted First Aid facilities.

INFORMATION AND EDUCATION

- 21 Prompt public warning if the beach or part thereof has or is expected to become grossly polluted or unsafe.
- 22 Evidence that the interests of protected sites and rare or protected species have been addressed with close liaison with recognised local conservation organisations.
- 23 Laws covering beach use and code of conduct easily available to the public (including in tourist offices, town hall).
- 24 Public display of – Bathing Water Quality poster with updated information of water quality and location of sampling points
– the Blue Flag Criteria.
- 25 The responsible authority should be able to demonstrate at least five educational activities relating to the coastal environment in the area.

APPENDIX D – TIDY BRITAIN GROUP – SEASIDE AWARD CRITERIA 1992

SEASIDE AWARD

RESORT BEACH CRITERIA FOR 1992

The awards for beaches attaining these high standards are only valid for one year. To be eligible a bathing beach has to fulfil all requirements. The flag should be removed whilst any criterion is not satisfied.

WATER QUALITY

- 1 The SEASIDE AWARD will be given to beaches which have bathing water of the mandatory standard (Bathing Water Directive 76/160/EC) and fulfil 28 land-based criteria.

The "Premier" SEASIDE AWARD will be given to beaches which have bathing water of the guideline standard (Bathing Water Directive 76/160/EC) and fulfil 28 land-based criteria.

Mandatory Bathing Water must meet the mandatory standards for the faecal and total coliform parameters of the EC Bathing Water Directive 76/160/EC. Guideline Bathing Water must meet the mandatory and guideline standards for the same parameters.

- 2 No industrial or sewage discharges affecting the beach area. The Seaside Awards Office should be notified of any discharge points within one mile.

BEACH AND INTERTIDAL AREA

- 3 No gross pollution by sewage related or other waste matter including litter and no discharge of industrial or urban waste.
- 4 No algal or other vegetation materials accumulating or decaying.
- 5 No oil pollution.

MANAGEMENT

- 6 The beach must be actively managed by the owners (local authority or private) as a tourist resort.
- 7 Local emergency plans to cope with pollution incidents.
- 8 Easy and safe access to the beach for all including disabled people where this is possible.
- 9 Prohibition of unauthorised driving, dumping and camping.
- 10 Manage the conflicting and incompatible needs of different users e.g. zoning for swimmers, surfers, windsurfers, motorised craft, nature conservation.
- 11 Dogs must be banned throughout the summer season.

- 12 Dog refuse bins must be available along the seafront where all dogs should be kept on a lead and under control at all times (or evidence that bye-law applications are being submitted).
- 13 A clearly marked and protected source of drinking water.
- 14 Public telephones, which must be checked daily, within easy access (5 minutes' walk) from the beach.
- 15 Adequate toilet facilities, cleaned and maintained daily, including facilities for disabled people.
- 16 All buildings and equipment must be maintained to a high standard and, where practicable, there must be safe confinement of all construction work which must not detract from the enjoyment of the beach user.
- 17 Adequate access and parking facilities with marked spaces and suitable access for disabled people. Where it is necessary to park on the beach it must be safe and clearly marked and defined.

CLEANSING

- 18 Adequate daily cleansing of the beach.
- 19 Appropriate litter bins in adequate numbers (at least every 25 metres along the seafront), properly secured and regularly maintained, emptied at least daily.

SAFETY

- 20 The area patrolled by lifeguards should be clearly defined and marked.
- 21 Lifeguard(s) on duty during the summer season and/or adequate safety provision including lifesaving equipment.
- 22 Clearly sign-posted First Aid facilities must be available on the seafront.
- 23 Some daily beach supervision throughout the holiday season between 10.00 am and 6.00 pm. This may be through attendant lifeguards, first aid officer, beach officer or a combination.
- 24 A record should be kept of all emergency incidents and the Seaside Awards office notified of any significant incidents.

INFORMATION AND EDUCATION

- 25 Prompt public warning if the beach or part thereof has or is expected to become grossly polluted or unsafe.
- 26 Evidence that the interests of protected sites and rare or protected species have been addressed with close liaison with recognised local conservation organisations.
- 27 Laws covering beach use and appropriate codes of conduct easily available to the public (including in Tourist Information centres and civic offices).

- 28 Public display of – Bathing Water Quality Poster with
updated information of water quality
– Car parks
– The Award Criteria
– The Seaside Awards Office address
– Map delineating the area of the awarded
beach and location of sampling points.

29 The responsible authority should be able to demonstrate that it encourages promotional/educational activities relating to the coastal environment in the area.

WATER QUALITY CRITERIA

Water quality will be judged on the results of water analyses during the summer season of 1991.

Mandatory Bathing Water must meet the mandatory standards for the faecal and total coliform parameters of the EC Bathing Water Directive 76/160/EC.

[a] Total coliform < 10,000 per 100ml

[b] Faecal coliform < 2,000 per 100ml

There should be at least 20 samples, taken at regular intervals throughout the summer season, of which 95% must comply with each of the above two parameters.

Guideline Bathing Water must meet the guideline standards for the faecal and total coliform parameters and the mandatory standard for the faecal and total coliform parameters of the EC Bathing Water Directive 76/160/EC.

[a] Total coliform < 500 per 100ml

[b] Faecal coliform < 100 per 100ml

There should be at least 20 samples, taken at regular intervals throughout the summer season, of which 80% must comply with each of the above two parameters.

A beach will be eligible for the SEASIDE AWARD where the bathing water meets the mandatory standards.

A beach will be eligible for the "Premier" SEASIDE AWARD where the bathing water meets the guideline standards.

AWARD ENTRY FEES

The fee includes all administration, judging and certificate/flag costs.

Those beaches entering for the Tidy Britain Group's SEASIDE AWARD can also enter for the European Blue Flag for an additional fee of £200.

SEASIDE AWARD for resort beaches:	£300
SEASIDE AWARD for rural beaches:	£100
EUROPEAN BLUE FLAG for resort beaches:	£500

SEASIDE AWARD

RURAL BEACH CRITERIA FOR 1992

This award is open to any rural beach which has limited facilities and has not been actively managed and developed as a resort. The aim of the award is to acknowledge those beaches for their undeveloped qualities whilst at the same time promoting considerate use by visitors.

The awards for beaches attaining these high standards are only valid for one year. To be eligible for the award a bathing beach has to fulfil all the requirements. The award should be removed whilst any criterion is no longer satisfied.

WATER QUALITY

- 1 The SEASIDE AWARD will be given to beaches which have bathing water of the mandatory standard (Bathing Water Directive 76/160/EC) and fulfil 8 land-based criteria.

The "Premier" SEASIDE AWARD will be given to beaches which have bathing water of the guideline standard (Bathing Water Directive 76/160/EC) and fulfil 8 land-based criteria.

Mandatory Bathing Water must meet the mandatory standards for the faecal and total coliform parameters of the EC Bathing Water Directive 76/160/EC. Guideline Bathing Water must meet the mandatory and guideline standards for the same parameters.

BEACH AND INTERTIDAL AREA

- 2 No gross pollution by sewage related debris or other waste including oil, glass and litter and no discharge of industrial or urban waste or decaying vegetation.

MANAGEMENT

- 3 The beach must be actively managed under a scheme of "guardianship" by a local group, school, parish or individual.
- 4 Access must be safe and well maintained.
- 5 Discouragement of unauthorised driving, dumping and camping.
- 6 Any buildings and equipment must be adequately maintained and there must be safe confinement of all construction work which must not detract from the enjoyment of the beach user.

CLEANSING

- 7 Provision of properly secured litter bins in adequate numbers where appropriate.

SAFETY

- 8 Beach users should be warned that if they swim they do so at their own risk.

INFORMATION AND EDUCATION

An Information Point with advice about nearest:

- telephone
- hospital/surgery
- first aid
- police
- coastguard
- local hazards

and

map delineating the appropriate area of the beach, sampling points and facilities if appropriate.

Each entry should be accompanied by:

Evidence to show a scheme of "guardianship" of the beach; this may be a local school, parish council or even individual who has undertaken to keep an eye on the beach, alert authorities to problems and even do some litter picking and maintenance of notices.

Evidence that visitors are actively encouraged to protect and conserve the beach and that there has been consultation and liaison with recognised local conservation organisations.

A map and a short (2 page) summary of plans for the coastal area and denoting areas of site fragility which are not suitable to carry large numbers of visitors.



NRA

National Rivers Authority