

# *Water Quality - Bathing Water Report*

## **BATHING WATERS REPORT**

**1996**

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**August 1997**

**ENVIRONMENT AGENCY  
WELSH REGION CATALOGUE  
ACCESSION CODE AFSK  
CLASS No**

# **ENVIRONMENT AGENCY WELSH REGION**

## **1996 BATHING WATER SURVEY**

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## ENVIRONMENT AGENCY WELSH REGION

### 1996 BATHING WATER SURVEY

#### 1. BACKGROUND

- 1.1 The Environment Agency (the Agency) was created on April 1 1996, as an amalgamation of the National Rivers Authority (NRA), Her Majesty's Inspectorate of Pollution (HMIP), the Waste Regulation Authorities and some functions of the Department of the Environment (DoE). The Agency assumed the responsibilities of the NRA for the Bathing Water Directive from this date.
- 1.2 EC Directives are agreements between the EC and Member States. Thus the interpretation of them at national level, their adoption into national law, and accountability for compliance with the terms of the directives, lies entirely with national governments.
- 1.3 The EC Bathing Waters Directive (76/160/EEC) was intended primarily to safeguard public health and the environment by reducing the pollution of bathing waters and protecting such waters against further deterioration. Under the Water Act 1989, the Environment Agency has inherited the responsibility of carrying out the necessary monitoring programmes in relation to certain water-related directives, which include the Bathing Waters Directive, in England and Wales. The results from these monitoring programmes in Wales are submitted to the Welsh Office (WO) and the Department of the Environment (DoE). It is for such Government Departments, however, to interpret this and other such EC Directives within England and Wales, and it follows from the preceding paragraph that only they can assess 'compliance' or otherwise with the Directives.
- 1.4 When Directive 76/160/EEC was first adopted, only a limited number of bathing waters were identified by the UK Government. A large list of bathing waters has since been added to the initial list, and all these are included in the Government's report to the EC. If bathing waters are not included in that report then they do not come within the terms of the Directive and thus, by definition, cannot be said to comply, or fail to comply, with its conditions. However, a number of non-identified bathing waters have in the past been routinely monitored by one of the Agency's predecessors, the NRA, and the results included in these reports for comparison.

The NRA decided to cease all non-EC bathing water monitoring from 1994 because it considered that it had sufficient information to characterise these waters. The only exceptions to this are any bathing waters nominated by local councils for consideration for EC Directive "identification". However, in Welsh Region, to enable local councils to continue to apply for the various Seaside awards at non-EC bathing waters, an initiative, now coordinated by the Environment Agency and involving the Welsh Office, Wales Tourist Board, Dŵr Cymru, Hyder Laboratories and the maritime local

authorities, has been set up to collect the necessary data. 1996 was the third year of this initiative, the results of which are included in this report. It is hoped that the initiative will continue next year, further details of which are given in section 4.

- 1.5 The Directive specifies a range of water quality standards which should be achieved in identified bathing waters and indicates the required monitoring frequency. These standards fall into two categories, mandatory (I) and guideline (G) standards. Details of the requirements for compliance with these are given in Appendix 1.
- 1.6 The Bathing Waters (Classification) Regulations 1991 were published as a Statutory Instrument on 9th August 1991, bringing the regulations into UK law. The "Notice" and "Directions" were received in 1992.
- 1.7 The Government currently uses the faecal and total-coliforms "I" standards as the basis for determining UK compliance with the Directive. Additional microbiological "I" standards concern the occurrence of Salmonella and enteroviruses. Physico-chemical "I" standard parameters are tested as indicated in Appendix 1. The occurrence of faecal streptococci is also examined, although this parameter only has a non-mandatory "G" standard in the Directive. Welsh Region has been granted a derogation for transparency (see Appendix 1) at all its bathing waters from 1991.

## **2. SAMPLING PROGRAMME**

The 57 bathing waters reported by the Welsh region in 1996 which are currently identified by the UK Government as falling within the scope of the Directive are displayed on Figure 1 and listed in Appendix 2. All of these bathing waters are in Wales, apart from one, West Kirby, which is in England.

- 2.2 The Government requires that these bathing waters are monitored in accordance with the requirements of the Bathing Waters Directive and the data reported to the WO and DoE by November of each year. This report summarises the results of the monitoring carried out during the 1996 bathing season.
- 2.3 The non-identified bathing waters included in the initiative described in section 1.4 and monitored by the local authorities are displayed in Figure 2 and listed in Appendix 3.
- 2.4 A summary report on the current status of Directive 76/160/EEC compliance in England and Wales was published by the Environment Agency in January 1997.

## **3 1996 MONITORING PROGRAMME FOR BATHING WATERS IDENTIFIED AS FALLING WITHIN THE TERMS OF THE BATHING WATERS DIRECTIVE**

- 3.1 Monitoring is confined to the period 1st May - 30th September, which includes two weeks sampling prior to the DoE identified bathing season (15 May - 30th September).

3.2 Guidance has been issued by DoE indicating the frequency of monitoring required for each parameter. This guidance has been used to develop the monitoring programme within Welsh Region. DoE specified that faecal and total coliforms should be analysed on at least 20 occasions during the bathing season. Since 1992 the reported faecal and total coliform results have been "confirmed" instead of the "presumptive" results which had been reported in previous years \*. The test for Salmonella is carried out twice during the bathing season. The test for enteroviruses is also carried out twice, but up to 1995 only at the bathing waters which failed to achieve the faecal / total coliform standards during the previous bathing season. During 1996 Welsh Region used a "trigger" to determine whether weekly surveys of the beach indicated deterioration of water quality which could be due to the presence of sewage pollution. Those which failed the trigger were then sampled twice for enteroviruses in addition to the beaches that had failed to achieve the faecal/total coliform standards during 1995. Details of this "trigger" are contained in Appendix 6.

pH is only required to be measured once during the season and the physicochemical parameters are assessed on 20 occasions during the bathing season.

3.3 Summary data on the microbiological quality collected from the 57 identified bathing waters are reported in Appendix 4. These results, together with those from elsewhere in the UK have been published by the Government.

3.4 Table 1 summarises:

a) "confirmed" faecal and total coliform sample statistics and compliance, as reported by the DoE, with the "I" values for the 57 identified Welsh Region bathing waters in 1996. These results indicate that overall 52 (91.2%) complied with the combined standard. Of the 56 Bathing Waters in Wales, 52 (92.9%) complied with the combined standard.

b) Salmonella sample statistics for the 57 identified Welsh Region bathing waters in 1996. The results indicate that at 49 (86%) no Salmonella were identified. At 49 of the 56 Bathing Waters in Wales (87.5%), no Salmonella were identified.

c) Enterovirus sample statistics for the 14 identified Welsh Region bathing waters sampled for enterovirus in 1996 for a variety of reasons. The results indicate that at 10 of the 14 (71.4%) no enterovirus were identified. At 10 of the 13 Bathing Waters in Wales (76.9%) no enterovirus were identified.

d) Faecal streptococci sample statistics for the 57 identified Welsh Region bathing waters tested in 1996. The results indicate that 33 (57.9%) had <three samples with a value >100 faecal streptococci per 100 ml. At the 56 Bathing Waters in Wales, 33 (59%) had <three samples with a value >100 faecal streptococci per 100 ml.

\*"Confirmation" of the Coliform test requires further analysis of all samples to substantiate the result.

#### **4. 1996 MONITORING PROGRAMME FOR BATHING WATERS NOT IDENTIFIED UNDER THE TERMS OF THE BATHING WATERS DIRECTIVE**

- 4.1 The NRA ceased monitoring non-identified waters from 1994 but coordinated an initiative to help to ensure that the necessary data was available to enable local councils to nominate waters for Bathing Water awards. The initiative is funded by Wales Tourist Board, Dŵr Cymru, and the Welsh Office, with Hyder Environmental carrying out most of the analyses at cost price. Local councils carried out the sampling to Agency specifications. Cardiganshire, Pembrokeshire and Anglesey Councils wanted more sites monitored than could be included in the scheme so they independently contracted Hyder to carry out the analyses. Swansea Council did not take part in this initiative although they collected samples and had them analysed at Swansea Public Health Laboratory, as in previous years.

The Agency carried out interlaboratory quality control checks to include the Agency's Llanelli laboratory, Hyder Laboratories, Swansea PHLs and Marine Biological and Chemical Consultants (MBCC) in Bangor to ensure consistency. All local councils agreed for their data to be included on the Agency data archive and so be available to the public.

A total of 120 non-identified bathing waters in Wales were monitored during 1996. These results have been reported to the Welsh Office. Appendix 5 gives summary statistical details for this monitoring programme. Due to limited resources it was not possible to report "confirmed" faecal and total coliform results for all samples. Only those samples which exceeded the 2000/100ml faecal coliform standard or the 10000/100ml total coliform standard were "confirmed", although this was inconsistently applied during 1996 and the data reported for Swansea Bay at County Hall, Sketty Lane, Blackpill, Norton Slip, Knap Rock, Mumbles Head Pier and Broughton is all "presumptive" data only.

- 4.2 A summary of the analysis at each of these waters for Faecal Coliforms and Total Coliforms is shown in Table 2. This shows that 94 (78.3%) had <two samples with a value >2000/100 ml for Faecal Coliforms and that 107 (89.2%) had <two samples with a value >10000/100 ml for Total Coliforms. A total of 94 non-identified bathing waters (78.3 %) had <two samples with >2000 Faecal Coliforms and <two samples with >10000 Total Coliforms per 100 ml.
- 4.3 A summary of the analysis for faecal streptococci is also shown in Table 2. The results show that 43 (35.8%) had <three samples with a value of >100 faecal streptococci per 100 ml.

#### **5 BLUE FLAG AND SEASIDE AWARDS**

- 5.1 The European Blue Flag Scheme is organised by the Federation of Environmental Education in Europe (FEEE). In the UK it is administered by the charity Tidy Britain Group (TBG). European Blue flags are only awarded to those EC identified

beaches, where an application has been made by the local authority or an other interested party and they meet the strict water quality and land-based requirements of the award scheme.

The water quality is judged on the results of the analyses of samples taken during the previous bathing season. The 1996 awards required compliance with "guideline" value water quality standards of the Directive for total and faecal coliforms and for faecal streptococci. In Wales, Trearddur Bay, Whitesand's Bay, Tenby North and Cefn Sidan were awarded Blue Flags in 1996.

- 5.2 The Seaside Award scheme was introduced in 1992 and is also administered by TBG. Both EC identified and other beaches are eligible for application of these awards. There are two categories of award, Resort and Rural, depending on whether the beach is part of a managed tourist resort or whether it is a smaller beach with limited facilities, but still has clean water.

Water quality is again judged on the results of the analyses of samples taken during the previous bathing season. In order to be eligible for a "Seaside Award", the beach must meet the mandatory or guideline standards for faecal and total coliforms, along with the specified land-based criteria. In 1996, 65 beaches in Wales received Seaside Awards.

## **6 REMEDIAL MEASURES REQUIRED TO MEET LONG TERM OBJECTIVE**

- 6.1 The long term objective is for all identified bathing waters to comply with the standards laid down in the Directive. In order to facilitate this the former NRA Welsh Region identified and prioritised the remedial works required at identified bathing waters to ensure that Dŵr Cymru Welsh Water (DCWW) discharges were not the cause of failure of the faecal and total coliform standards by the end of 1995. The bathing waters in the Cardiff and Swansea Bay areas should not be failing as a result of improved treatment being provided at some DCWW discharges by the beginning of the 1998 Bathing Water season.

The necessary improvements have been one of the main drivers behind DCWW's investment programme during the last 5 years. Now these improvements are nearing completion, it is clear that in some cases other non DCWW discharges are causing problems for beach compliance. The requirements for remedial works at non-identified bathing waters are being reviewed.

It must be emphasised that compliance is considered an unreliable indication of trends due to the statistical limitations of such a small data set. Variation in compliance from year to year therefore does not necessarily indicate genuine improvements or deteriorations.

- 6.2 Table 3 compares the compliance of the identified bathing waters over the period 1986 - 1996 (the assessment was carried out differently prior to 1986 and therefore cannot be included). It is important to realise that slightly different criteria were used for 1986

and 1987 where a look-up table approach, which also entailed reduced sampling effort, was adopted by the Government. Therefore care must be taken when making any comparison of compliance between 1986/87 and subsequent years. It should also be noted that 1986 - 1991 figures show compliance using "presumptive" results, whereas figures from 1992 show "confirmed" results.

In addition, Table 3 indicates those bathing waters which are included in the DCWW investment programme designed to meet compliance by the UK with its obligations under the EC Bathing Waters Directive.

6.3 Table 4 shows quality of the non-identified bathing waters over the period 1986 to 1996 where they were sampled.

## 7. SUMMARY

7.1 As reported by the DoE, a total of 52 out of the 57 identified bathing waters complied with the faecal and total coliform "I" standards specified in the Directive (91.2%). (52 of the 56 in Wales (92.9%)).

7.2 Of the 120 non-identified bathing waters in Wales sampled in 1996, 94 had <two samples with >2000 faecal and <two samples with >10000 total coliforms per 100 ml (78.3%).

7.3 Summary table showing compliance with the combined faecal and total coliform standards:- (All samples were "confirmed" for identified waters, but at non identified waters only those samples which exceeded the 2000/100ml faecal coliform standard or the 10000/100ml total coliform standard were "confirmed".)

Bathing Water		Number	Number with <two samples with >2000 faecal and <10000 total coliforms per 100 ml	Percent
EC	Welsh Region	57	52	91.2
	Wales	56	52	92.9
NON EC	Wales	120	94	78.3



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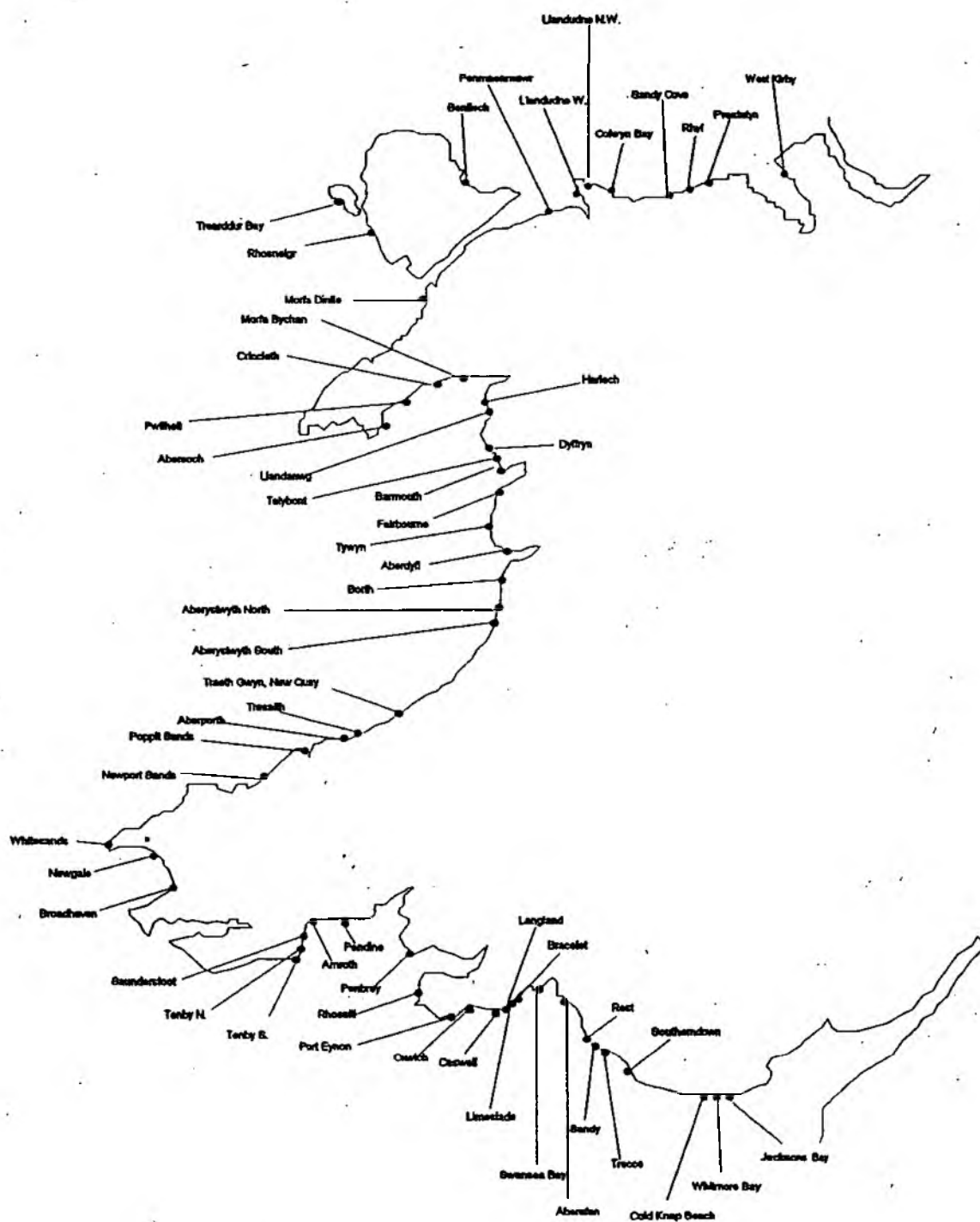
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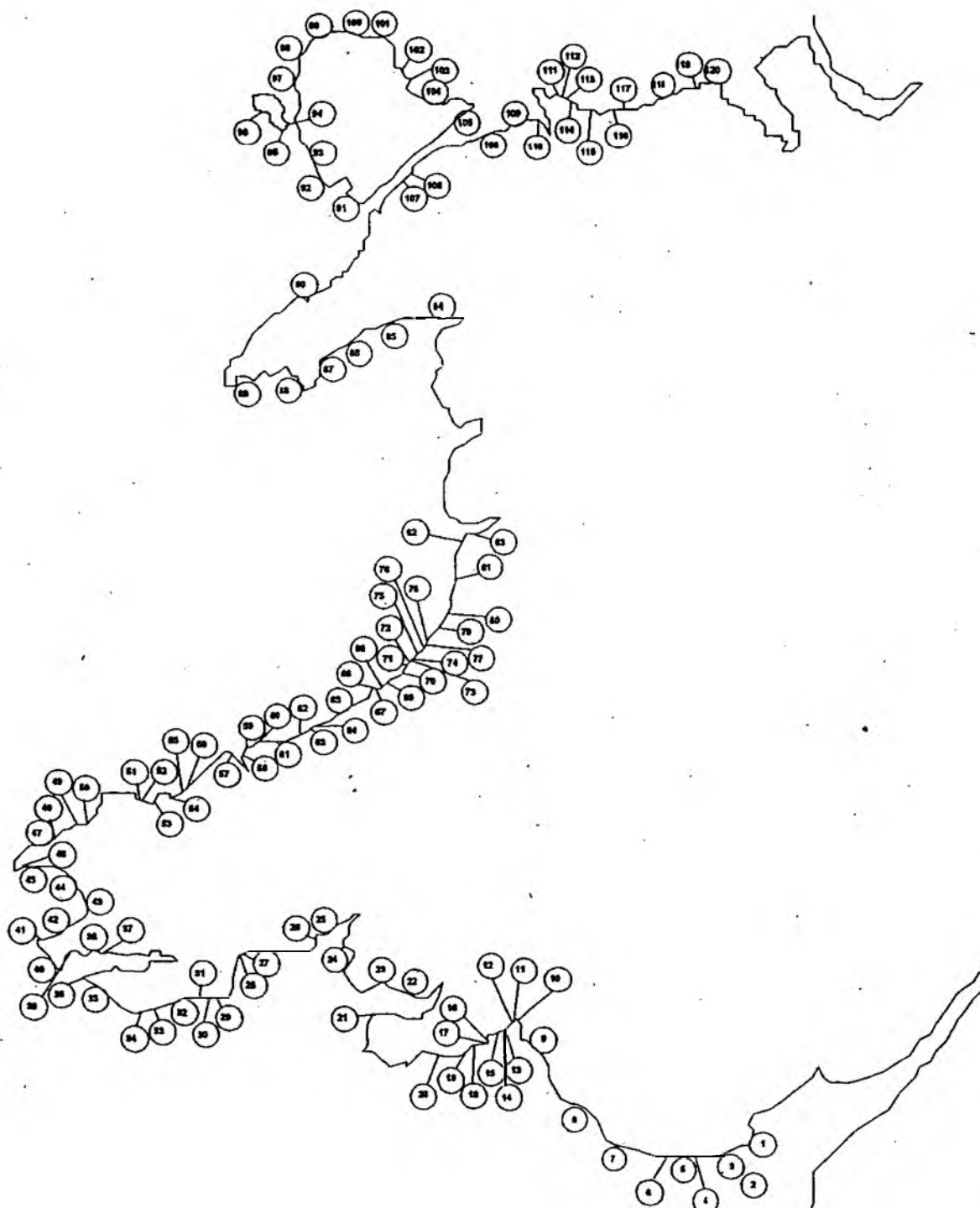
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**Location of Identified Bathing Water Sampling Sites  
Reported to DoE by Environment Agency Welsh Region**



**Figure 2**

**Location of Non-Identified Bathing Waters Sampling Sites around Wales**



**Asiantaeth yr Amgylchedd**  
Plas-yr-Afon, Parc Busnes  
Llaneirwg, Llaneirwg  
Caerdydd CF3 OLT  
Cyfeiriad DX 706953  
Ffon 01222 770088  
Ffacs 01222 798555  
GTN 7-26 X 1000

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AGENCY**

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# memorandum

I/To See circulation list

Oddi wrth/From Jane Roberts

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Estyniad/Extension number 7 26 2097

Ein cyf/Our ref PPC/WQ/B11/jdr

Eich cyf/Your ref

Dyddiad/Date: 20th August 1997

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## 1996 WELSH REGION BATHING WATER REPORT

Please find enclosed a copy of the 1996 Welsh Region Bathing Water Report.

If you have any queries regarding this report please contact Colin Strange or myself.

*Jane Roberts*

JANE ROBERTS  
EC DIRECTIVES OFFICER

## LIST OF BATHING WATERS FOR FIGURE 2

1	Penarth Yacht Club	55	Newport Parrog	109	Morfa Conwy
2	St Marys Well Bay	56	Newport Sands South	110	Deganwy N. Shelter
3	Bendricks Beach	57	Poppit Sands East	111	Penrhyn Bay
4	Watchouse Bay	58	Patch	112	Rhos Road, Colwyn Bay
5	Fontygary Bay	59	Gwbert	113	Penrhos, Colwyn Bay
6	Limpert Bay	60	Mwnt at Aberporth	114	Colwyn Bay (25020)
7	Llantwit Major Beach	61	Aberporth E.	115	Llanddulas
8	Newton Bay	62	Penbryn	116	Abergele
9	Aberafan East	63	Llangranog	117	Towyn
10	Jersey Marine East	64	Cil Borth	118	Ffrith Beach
11	Jersey Marine Central	65	Cwm Tudu	119	Gronant
12	Jersey Marine West	66	Newquay N.	120	Point of Ayr
13	Swansea Bay County Hall	67	Newquay S.		
14	Swansea Bay Sketty Lane	68	Llanina		
15	Swansea Bay Black Pill	69	Little Quay (Cei Bach)		
16	Mumbles Knap Rock	70	Gilfach yr Halen		
17	Mumbles Head Pier	71	Aberaeron S.		
18	Brandy Cove	72	Aberaeron N. 4th Groyn		
19	Pwll Ddu	73	Aberaeron N.		
20	Three Cliffs Bay	74	Aberaeron N. of outfall		
21	Broughton Beach	75	Aberarth		
22	Llanelli Beach	76	Llanon		
23	Burry Port Beach	77	Llansantffraid		
24	St Ishmael	78	Llanrhystud S.		
25	Llanstephen Beach	79	Morfa Bychan at Slipway		
26	Ferryside	80	Tanybwch		
27	Wisemans Bridge	81	Clarach Bay N.		
28	Coppett Hall Beach	82	Ynyslas (22022)		
29	Lydstep	83	Ynyslas (20399)		
30	Skrinkle	84	Garreg Wen		
31	Manorbier Beach	85	Criccieth E (23141)		
32	Freshwater East	86	Morfa Abererch		
33	Barafundle	87	Llanbedrog		
34	Broad Haven South	88	Porth Neigwl		
35	Freshwater West	89	Aberdaron		
36	West Angle	90	Porth Nefyn		
37	Gelliswick	91	Llanddwyn (Niwbwrch)		
38	Sandy Haven	92	Traeth Mawr		
39	Dale	93	Porth Nobla		
40	Marloes	94	Silver Bay		
41	Martins Haven	95	Borth Wen		
42	St Brides Haven	96	Porth Dafarch		
43	Little Haven	97	Sandy Beach		
44	Nolton Haven	98	Church Bay		
45	Caerfai	99	Cemaes Bay		
46	Porthclais	100	Bull Bay		
47	Abereiddy	101	Porth Eilian		
48	Traethllyn	102	Traeth Llugwy		
49	Abercastle	103	Moelfre		
50	Abermawr	104	Llanddona		
51	Goodwick Harbour	105	Beaumaris		
52	Goodwick Beach	106	Port Dinorwic		
53	Pwll Gwaelod	107	Plas Menai		
54	Cwm yr Eglwys	108	Llanfairfechan Shore Rd		

**Table 1- Analyses of EC Identified Beach Results**

Reason for Enterovirus sample : a = failed 1995, b = Trigger, c = pre-planned operational reasons

Bathing Water	DoE Compliance with "I" values for confirmed results							Salmonella Analyses		Enterovirus Analyses		Faecal Streptococci Analyses	
	Total Coliforms			Faecal Coliforms			Overall Pass/Fail	No. Samples	No. +ve results	No. Samples	No. +ve results	No. Samples	No. samples > 100/100ml
	No. Samples	No. Fail	Pass/Fail	No. Samples	No. Fail	Pass/Fail							
Jacksons Bay	20	0	P	20	2	F	F	2	0	2 <sub>b</sub>	1	20	15
Whitmore Bay	20	0	P	20	0	P	P	2	1	0	0	20	14
Cold Knap	20	0	P	20	0	P	P	2	0	0	0	20	5
Southerndown	20	0	P	20	0	P	P	2	0	0	0	20	1
Trecco Bay	20	0	P	20	0	P	P	2	0	0	0	20	0
Sandy Bay	20	0	P	20	0	P	P	2	0	0	0	20	2
Rest Bay	20	0	P	20	0	P	P	2	0	0	0	20	1
Aberafan	20	0	P	20	0	P	P	2	0	0	0	20	2
Swansea Bay	20	2	F	20	2	F	F	2	0	2 <sub>a</sub>	0	20	13
Bracelet Bay	20	0	P	20	0	P	P	2	2	0	0	20	4
Limeslade Bay	20	1	P	20	0	P	P	2	1	0	0	20	4
Langland Bay	20	0	P	20	1	P	P	2	1	0	0	20	3
Caswell Bay	20	0	P	20	0	P	P	2	1	0	0	20	4

Bathing Water	DoE Compliance with "I" values for confirmed results							Salmonella Analyses		Enterovirus Analyses		Faecal Streptococci Analyses	
	Total Coliforms			Faecal Coliforms			Overall Pass/Fail	No. Samples	No. +ve results	No. Samples	No. +ve results	No. Samples	No. samples > 100/100ml
	No. Samples	No. Fail	Pass/Fail	No. Samples	No. Fail	Pass/Fail							
Oxwich Bay	20	0	P	20	0	P	P	2	0	0	0	20	0
Port Eynon Bay	20	0	P	20	0	P	P	2	0	0	0	20	0
Rhossili	20	0	P	20	0	P	P	2	0	0	0	20	0
Pembrey	20	0	P	20	0	P	P	2	0	0	0	20	0
Pendine	20	0	P	20	0	P	P	2	0	0	0	20	2
Amroth	20	0	P	20	0	P	P	2	0	0	0	20	1
Saundersfoot	20	0	P	20	1	P	P	2	0	0	0	20	5
Tenby North	20	0	P	20	0	P	P	2	0	0	0	20	2
Tenby South	20	0	P	20	1	P	P	2	0	0	0	20	6
Broadhaven	20	0	P	20	0	P	P	2	0	0	0	20	1
Newgale	20	0	P	20	0	P	P	2	0	0	0	20	2
Whitesands	20	0	P	20	0	P	P	2	0	0	0	20	2
Newport North	20	0	P	20	1	P	P	2	0	0	0	20	2
Poppit Sands	20	0	P	20	0	P	P	2	0	0	0	20	4
Aberporth	20	0	P	20	0	P	P	2	0	0	0	20	3



Bathing Water	DoE Compliance with "I" values for confirmed results							Salmonella Analyses		Enterovirus Analyses		Faecal Streptococci Analyses	
	Total Coliforms			Faecal Coliforms			Overall Pass/Fail	No. Samples	No. +ve results	No. Samples	No. +ve results	No. Samples	No. samples > 100/100ml
	No. Samples	No. Fail	Pass/Fail	No. Samples	No. Fail	Pass/Fail							
Tresaith	20	0	P	20	0	P	P	2	0	0	0	20	6
Traeth Gwyn New Quay	20	0	P	20	0	P	P	2	0	0	0	20	1
Aberystwyth South	20	0	P	20	0	P	P	2	0	0	0	20	1
Aberystwyth North	20	0	P	20	0	P	P	2	0	0	0	20	1
Borth	20	0	P	20	0	P	P	4	0	2 <sub>a</sub>	0	20	1
Aberdyfi	20	2	F	20	3	F	F	2	0	2 <sub>a</sub>	0	20	5
Tywyn	20	0	P	20	0	P	P	2	0	0	0	20	2
Fairbourne	20	0	P	20	0	P	P	2	0	0	0	20	1
Barmouth	20	0	P	20	0	P	P	2	0	0	0	20	2
Talybont	20	0	P	20	0	P	P	2	0	0	0	20	1
Dyffryn/Llanendwyn	20	0	P	20	0	P	P	2	1	0	0	20	0
Llandanwg	20	0	P	21	0	P	P	2	0	0	0	21	1
Harlech	20	2	F	21	2	F	F	2	0	2 <sub>a</sub>	0	21	4
Morfa Bychan	20	0	P	20	0	P	P	2	0	2 <sub>c</sub>	0	20	2
Criccieth	20	0	P	21	1	P	P	2	1	0	0	21	3

Bathing Water	DoE Compliance with "I" values for confirmed results							Salmonella Analyses		Enterovirus Analyses		Faecal Streptococci Analyses	
	Total Coliforms			Faecal Coliforms			Overall Pass/Fail	No. Samples	No. +ve results	No. Samples	No. +ve results	No. Samples	No. samples > 100/100ml
	No. Samples	No. Fail	Pass/Fail	No. Samples	No. Fail	Pass/Fail							
Pwllheli	20	0	P	20	1	P	P	2	0	0	0	20	1
Abersoch	20	0	P	21	0	P	P	2	0	0	0	21	4
Morfa Dinlle	20	0	P	20	0	P	P	2	0	0	0	20	2
Rhosneigr	20	0	P	20	0	P	P	2	0	2 <sub>b</sub>	0	20	1
Trearddur Bay	20	0	P	20	0	P	P	2	0	0	0	20	3
Benllech	20	0	P	20	0	P	P	2	0	2 <sub>b</sub>	0	20	3
Penmaenmawr	20	0	P	20	0	P	P	2	0	2 <sub>a</sub>	0	20	2
Llandudno West Shore	20	1	P	20	0	P	P	2	0	2 <sub>c</sub>	1	20	3
Llandudno North Shore	20	0	P	20	0	P	P	2	0	0	0	20	3
Colwyn Bay	20	0	P	20	0	P	P	2	0	2 <sub>c</sub>	1	20	6
Sandy Cove	20	0	P	20	0	P	P	2	0	1 <sub>b</sub>	0	20	2
Rhyl	20	0	P	20	0	P	P	2	0	2 <sub>a</sub>	0	20	2
Prestatyn	20	0	P	20	0	P	P	2	0	0	0	20	3
West Kirby	20	3	F	20	5	F	F	2	1	2 <sub>a</sub>	1	20	13

**Table 2 - Analyses of Non-Identified Bathing Waters Results**

Council	Bathing Water	Total Coliforms		Faecal Coliforms		Faecal Streptococci	
		No. Samples	No. samples >10000/100ml	No. Samples	No. samples > 2000/100ml	No. samples	No. samples > 100/100ml
Vale of Glamorgan CBC	Penarth Yacht Club	20	3	20	7	20	19
	St Marys Well Bay	20	1	20	1	20	16
	Bendricks Beach	20	4	20	6	20	14
	Watchouse Bay	20	1	20	0	20	7
	Fontygary Bay	20	0	20	0	20	2
	Limpert Bay	20	0	20	0	20	2
	Llantwit Major Beach	20	0	20	0	20	2
Bridgend CBC	Newton Bay	20	0	20	0	20	3
Neath and Port Talbot CBC	Aberafan East	21	0	21	0	21	7
	Jersey Marine East	20	0	20	1	20	10
	Jersey Marine Central	21	0	21	0	21	10
	Jersey Marine West	20	0	20	0	20	9

Council	Bathing Water	Total Coliforms		Faecal Coliforms		Faecal Streptococci	
		No. Samples	No. samples >10000/100ml	No. Samples	No. samples > 2000/100ml	No. samples	No. samples > 100/100ml
Swansea CC	Swansea Bay County Hall	21	1	21	3	20	6
	Swansea Bay Sketty Lane	21	1	21	2	20	10
	Swansea Bay Black Pill	21	1	21	3	20	9
	Mumbles Knap Rock	21	0	21	1	20	7
	Mumbles Head Pier	21	0	21	1	20	9
	Brandy Cove	16	2	16	2	15	3
	Pwll Du	16	0	16	0	15	0
	Three Cliffs Bay	16	0	16	0	15	2
	Broughton Beach	21	0	21	1	20	3
Carmarthenshire CC	Llanelli Beach	20	3	20	6	20	10
	Burry Port Beach	20	1	20	2	20	2
	St Ishmael	20	1	20	3	20	5
	Llanstephen Beach	20	2	20	4	20	9
	Ferryside Beach	20	2	20	4	20	9

Council	Bathing Water	Total Coliforms		Faecal Coliforms		Faecal Streptococci	
		No. Samples	No. samples >10000/100ml	No. Samples	No. samples > 2000/100ml	No. samples	No. samples > 100/100ml
Pembrokeshire CC	Wisemans Bridge	20	0	20	0	20	3
	Coppett Hall Beach	20	0	20	1	20	6
	Lydstep	20	0	20	0	20	0
	Skrinkle	20	0	20	0	20	1
	Manorbier	20	0	20	0	20	2
	Freshwater East	20	0	20	0	20	4
	Barafundle	20	0	20	1	20	1
	Broad Haven South	20	0	20	0	20	1
	Freshwater West	20	0	20	0	20	0
	West Angle	20	0	20	0	20	2
	Gelliswick	20	0	20	0	20	2
	Sandy Haven	20	0	20	0	20	1
	Dale	20	0	20	0	20	2
	Marloes	20	0	20	0	20	0
	Martins Haven	20	0	20	0	20	0
	St. Brides Haven	20	0	20	0	20	2

Council	Bathing Water	Total Coliforms		Faecal Coliforms		Faecal Streptococci	
		No. Samples	No. samples >10000/100ml	No. Samples	No. samples > 2000/100ml	No. samples	No. samples > 100/100ml
	Little Haven	20	1	20	1	20	7
	Nolton Haven	20	0	20	0	20	3
	Caerfai	20	0	20	1	20	2
	Porthclais	20	0	20	1	20	3
	Abereiddy	20	0	20	0	20	1
	Traethllyn	20	0	20	0	20	1
	Abercastle	20	1	20	4	20	9
	Abermawr	20	0	20	0	20	1
	Goodwick Harbour	20	1	20	1	20	1
	Goodwick Beach	20	0	20	2	20	6
	Pwll Gwaelod	20	2	20	2	20	6
	Cwm yr Eglwys	20	1	20	1	20	5
	Newport Parrog	20	2	20	2	20	10
	Newport Sands South	20	0	20	1	20	1
	Poppit Sands East	20	0	20	1	20	1
Cardiganshire CC	Patch	20	1	20	0	20	2

Council	Bathing Water	Total Coliforms		Faecal Coliforms		Faecal Streptococci	
		No. Samples	No. samples >10000/100ml	No. Samples	No. samples > 2000/100ml	No. samples	No. samples > 100/100ml
	Gwbert	20	3	20	4	20	6
	Mwnt at Aberporth	20	0	20	0	20	1
	Aberporth E	20	0	20	0	20	5
	Penbryn	20	0	20	1	20	5
	Llangranog	20	1	20	1	20	7
	Cil Borth	20	0	20	0	20	2
	Cwmtudu	20	0	20	0	20	5
	Newquay N	20	0	20	0	20	2
	Newquay S	20	0	20	0	20	2
	Llanina	20	0	20	0	20	5
	Little Quay (Cei Bach)	20	0	20	2	20	4
	Gilfach yr Halen	20	0	20	1	20	1
	Aberaeron S	20	0	20	1	20	3
	Aberaeron N 4th Groyne	20	0	20	1	20	4
	Aberaeron N	20	3	20	4	20	12
	Aberaeron N of outfall (N of Groynes)	20	3	20	6	20	9

Council	Bathing Water	Total Coliforms		Faecal Coliforms		Faecal Streptococci	
		No. Samples	No. samples >10000/100ml	No. Samples	No. samples > 2000/100ml	No. samples	No. samples > 100/100ml
	Aberarth	20	0	20	1	20	5
	Llanon	20	1	20	3	20	8
	Llansantffraid	20	1	20	3	20	5
	Llanrhystud S	20	0	20	1	20	3
	Morfa Bychan at Slipway	20	0	20	0	20	1
	Tanybwllch	20	0	20	0	20	1
	Clarach Bay N	20	0	20	1	20	3
	Ynyslas	20	0	20	1	20	1
	Ynyslas Estuary	20	0	20	0	20	4
Gwynedd CC	Garreg Wen	21	3	21	6	20	10
	Criccieth E	21	0	21	0	20	12
	Morfa Abererch	21	0	21	0	20	2
	Llanbedrog	20	1	20	1	20	7
	Porth Neigwl	20	0	20	0	20	1
	Aberdaron	20	0	20	0	20	3
	Porth Nefyn	21	0	21	1	20	10



Council	Bathing Water	Total Coliforms		Faecal Coliforms		Faecal Streptococci	
		No. Samples	No. samples >10000/100ml	No. Samples	No. samples > 2000/100ml	No. samples	No. samples > 100/100ml
	Plas Menai	20	0	20	1	20	7
	Port Dinorwic	20	0	20	2	20	11
Anglesey CC	Llanddwyn (Niwbwrch)	20	0	20	0	20	1
	Traeth Mawr, Aberffraw	21	0	21	0	21	5
	Porth Nobla	22	0	22	0	22	4
	Silver Bay	21	0	21	0	21	3
	Borth Wen	20	0	20	0	20	4
	Porth Dafarch	21	0	21	0	21	1
	Sandy Beach	20	0	20	0	20	4
	Church Bay	20	0	20	0	20	4
	Cemaes	22	0	22	0	22	12
	Bull Bay	21	0	21	2	21	3
	Porth Eilian	21	0	21	0	21	6
	Traeth Llugwy	22	0	22	1	22	5
	Moelfre	21	0	21	0	21	4
	Llanddona	20	0	20	0	20	1

Council	Bathing Water	Total Coliforms		Faecal Coliforms		Faecal Streptococci	
		No. Samples	No. samples >10000/100ml	No. Samples	No. samples > 2000/100ml	No. samples	No. samples > 100/100ml
	Beaumaris	21	0	21	0	21	5
Aberconwy and Conwy CBC	Llanfairfechan	20	0	20	0	20	3
	Morfa Conwy	20	0	20	0	20	4
	Deganwy N Shelter	20	0	20	2	20	8
	Penrhyn Bay	20	4	20	4	20	7
	Rhos Road, Colwyn Bay	20	0	20	0	20	1
	Penrhos, Colwyn Bay	20	0	20	0	20	7
	Colwyn Bay	20	0	20	0	20	1
	Llanddulas	20	1	20	1	20	8
	Abergele	20	0	20	0	20	5
	Towyn	20	0	20	0	20	2
Denbighshire CC	Ffrith Beach	20	0	20	0	20	4
Flintshire CC	Gronant	20	0	20	0	20	3
	Point of Ayr	20	0	20	0	20	4

Table 3

**Comparison of 1986 to 1996 Compliance for Identified Bathing Waters with "I" Values  
for Faecal and Total Coliforms As Reported by the DoE (P=Pass:F=Fail)**

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	Completion date in Dŵr Cymru Prog.
Jacksons Bay	F	F	F	F	F	F	F	P	F	P	F	98
Whitmore Bay	F	F	F	F	F	P	F	P	F	P	P	98
Cold Knap	F	F	F	P	F	P	P	P	P	P	P	98
Southerndown	F	P	F	P	P	P	P	P	P	P	P	90
Trecco Bay	F	F	P	F	P	P	P	P	P	P	P	91
Sandy Bay	F	F	F	P	F	P	P	P	P	P	P	91
Rest Bay	F	P	P	P	P	P	P	P	P	P	P	91
Aberafan	F	P	P	P	P	P	P	P	P	P	P	95
Swansea Bay	F	F	F	P	F	P	F	F	P	F	F	97/98
Bracelet Bay	P	P	P	P	P	P	P	P	P	P	P	97/98
Limeslade Bay	F	F	P	F	P	P	P	P	F	P	P	97/98
Langland Bay	F	P	P	F	P	P	P	F	P	P	P	97/98
Caswell Bay	P	F	P	P	P	P	F	P	P	P	P	97/98
Oxwich Bay	P	P	P	P	P	P	P	P	P	P	P	97/98
Port Eynon Bay	P	P	P	P	P	P	P	P	P	P	P	
Rhossili	F	P	P	P	P	P	P	P	P	P	P	97
Pembrey	P	P	P	P	P	P	P	P	P	P	P	
Pendine	P	P	P	P	P	P	P	P	P	P	P	
Amroth	F	F	P	P	P	P	P	P	P	P	P	97
Saundersfoot	P	F	P	P	F	P	P	P	F	P	P	98
Tenby North	P	F	F	P	P	P	P	P	P	P	P	98
Tenby South	F	P	P	P	P	P	P	P	P	P	P	98
Broadhaven	F	P	P	P	P	P	P	P	F	P	P	99
Newgale	F	P	P	P	P	P	P	P	P	P	P	96
Whitesands	P	P	P	P	P	P	P	P	P	P	P	
Newport North	P	P	P	P	P	P	P	F	F	P	P	
\$ Poppit Sands											P	post 2000
++Aberporth										P	P	95
++Tresaith										P	P	95

Bathing Water	86	87	88	89	90	91	92	93	94	95	96	Completion date in Dŵr Cymru Prog.
Traeth Gwyn New Quay	P	P	P	P	P	P	P	P	F	P	P	95 and 2000
Aberystwyth South	F	F	P	P	F	P	F	F	F	P	P	95
Aberystwyth North	P	P	P	P	P	P	P	P	P	P	P	95
Borth	P	P	P	P	P	P	P	P	P	F	P	
**Aberdyfi					F	P	F	F	P	F	F	96
Tywyn	F	P	P	P	P	P	P	P	P	P	P	96
Fairbourne	P	P	P	P	P	P	P	P	P	P	P	post 2000
Barmouth	P	P	P	P	P	P	P	P	P	P	P	89
++Talyboht										P	P	
++Dyffryn/Llanendwyn										P	P	
Llandanwg	P	P	P	P	P	P	P	P	P	P	P	98
Harlech	P	P	P	P	P	P	P	P	P	F	F	98
Morfa Bychan	F	F	P	P	P	P	F	P	F	P	P	
Criccieth	P	F	P	P	F	P	F	P	F	P	P	95
Pwllheli	P	P	P	P	P	P	P	P	P	P	P	97
Abersoch	P	P	F	P	P	P	P	P	P	P	P	2000
* Morfa Dinlle			P	P	P	P	P	P	P	P	P	
**Rhosneigr						P	P	P	P	P	P	98/99
Trearddur Bay	F	F	P	P	P	P	P	P	P	P	P	91 and post 2000
Benllech	P	F	P	P	F	F	P	P	P	P	P	92
++Penmaenmawr										F	P	98
Llandudno West Shore	F	F	F	F	F	F	F	F	F	P	P	98/99
Llandudno North Shore	P	P	P	P	F	P	P	P	P	P	P	98/99
Colwyn Bay	P	P	P	P	P	P	P	F	P	P	P	98/99
Sandy Cove	F	F	F	F	F	F	F	P	P	P	P	94
Rhyl	F	F	F	F	F	F	F	F	P	F	P	94
Prestatyn	F	P	P	P	F	P	P	P	F	P	P	2000
+West Kirby						F	F	F	P	F	F	97
Total No. Waters	47	47	48	48	50	51	51	51	51	56	57	
Total No. Pass	23	28	37	40	35	45	39	42	39	49	52	
% Pass	49	60	77	83	70	88	76	82	76	87.5	91	

- \* This site was identified as falling within the scope of the Bathing Waters directive from 1988, however 1986 and 1987 samples confirm that it would have passed during those two years.
- \*\* These two sites were identified from 1990, analysis of samples taken in previous years shows that both sites would have failed in 1988 and both would have passed in 1989.
- + This site was identified from 1991. It is situated in England but fell within the Welsh Region of the NRA.
- ++ These 5 sites were identified from 1995
- \$ Identified from 1996
- # From 1992 all samples were subject to "confirmation" of analysis compared with previous years "presumptive" results.

1986 data from WWA 1986 Bathing Water Survey Report  
 1987 data from WWA 1987 Bathing Water Survey Report  
 1988 data from WWA 1988 Bathing Water Survey Report  
 1989 data from Welsh Region NRA 1989 Bathing Waters Report  
 1990 data from Welsh Region NRA 1990 Bathing Waters Report  
 1991 data from Welsh Region NRA 1991 Bathing Waters Report  
 1992 data from Welsh Region NRA 1992 Bathing Waters Report  
 1993 data from Welsh Region NRA 1993 Bathing Waters Report  
 1994 data from Welsh Region NRA 1994 Bathing Waters Report  
 1995 data from Welsh Region NRA 1995 Bathing Waters Report

NB Amendments have been made to this table to correct errors reported in the 1989 Bathing Waters Report.

**Table 4 Summary of Non-Identified Bathing waters sampled between 1986 and 1996**

Bathing Water	86	87	88	89	90	91	92	93	94	95	96
Penarth Yacht Club (19029)	F	F		F	F		F	F	F	F	F
St Marys Well Bay (19032)	F	F		F	F	F	F	P	F	F	P
Bendricks Beach (19076)						F			F	F	F
Whitmore Bay (19033)						P					
Whitmore Bay (19035)						P					
Little Island (19056)						P	P	P			
Watchouse Bay (68603)	F	F		F	F	P	P	P	F	P	P
Fontygary Bay (19038)	F	P		P	P	F	P	P	P	P	P
Limpert Bay (19147)							P		P	P	P
Llantwit Major Beach (74050)	P	P		P	P	F	P	P	P	F	P
Ogmore by Sea (19042)	F	F									
Ogmore by Sea (19043)	F	F	F	F	F	F	P				
Ogmore by Sea (19044)	F	F									
Newton Bay (19112)						F			F	P	P
Aberafan East (19050)			F	P	P	P	P		P	P	P
Aberafan West (19052)			P	P	F	P	P	P			
Margam Sands (19131)	P	F									
Margam Sands (19135)	P	P	F	P	F	P	P				
Margam Sands (74004)	P	F									
Jersey Marine East (74026)	F	F		P			P	P	F	P	P
Jersey Marine Central (39153)	F	F	F	P	P	P	P	P	F	P	P
Jersey Marine West (39097)	F	F		F			F	P	F	P	P
Swansea Bay (39098)				P							
Swansea Bay County Hall (74060)								P	P	P	F
Swansea Bay (39100)				F							
Swansea Bay Sketty Lane (39154)									F	F	F
Swansea Bay Black Pill (39101)				P		P	P	P	F	P	F
Swansea Bay (39102)				F					P	P	
Mumbles Knap Rock (39103)				F		F	P	P	P	P	P
Mumbles Head Pier (39104)				F		F	P	F	P	F	P

Bathing Water	86	87	88	89	90	91	92	93	94	95	96
Langland Bay E (39107)						P	P				
Brandy Cove (39170)						P					F
Pwll Du (39114)											P
Three Cliffs Bay West (39117)								P			P
Crawley Wood (74062)						P					
Fall Bay (74096)							P				
Broughton Beach (74025)		P		P	P	P	P	P	F	P	P
Llanelli Beach (39001)	F	F	F	F	F	F	F	F	F	F	F
Llanelli (39002)	F	F									
Burry Port Beach (39003)	F	P	F	P	P	P	P	P	F	F	F
St Ishmael (88503)	F								F	F	F
St Ishmael (88502)	F										
Llanstephen Beach (39008)	F						F		F	P	F
Ferryside Beach (39007)											F
Pendine West (39011)			P	P	P	P	P				
Morfa Bychan (88501)	F	P									
Amroth E (39012)			P	P	P	P	P				
Amroth W (39014)			P	P	P	P					
Wisemans Bridge (32797)								P	P	P	P
Coppett Hall Beach (32421)						F		P	F	F	P
Saundersfoot E (39016)			P	P	F	F	P				
Saundersfoot Slip (39018)			F	F							
Saundersfoot W (39019)			F	P	P	P	P				
Tenby N Lifeboat (39021)			P	P	P	P	P				
Tenby S St. Catherines (39022)			P	P	P	P	P				
Tenby S Atlantic Hotel (39023)			P	P	P	P	P				
Tenby S Opp Kiln Park (39025)			P	P	P	P	P				
Lydstep N Beach (39570)						P	P	P	P	P	P
Skrinkle (39423)							P	P	P	P	P
Manorbier Beach (39027)	P			F	F		P	P	P	P	P
Manorbier (39028)	P			P	P	P	P				

Bathing Water	86	87	88	89	90	91	92	93	94	95	96
Freshwater East (86210)	P										
Freshwater East (39029)	P			P	P		P		P	P	P
Freshwater East (39030)	P			P	P	P	P	P			
Barafundle (39136)							P	P	P	P	P
Broad Haven South (32422)						P	P	P	P	P	P
Freshwater West (39031)								P	P	P	P
West Angle (39032)			P		P			P	P	P	P
Llanreath Bay (86106)			F		P	P					
Neyland Slip (85110)			F			F					
Milford Beach (39191)						P					
Gelliswick (39037)	P		F		P	F	P	P	P	P	P
Sandy Haven (39192)						P					P
Dale(39040)		P	P		P	P	P	P	P	P	P
Marloes (32788)						P		P	P	P	P
Martins Haven (39041)									P		P
Musselwick (39140)						P					
St. Brides Haven (39042)						P				P	P
Little Haven (39043)		P			P		P		F	P	P
Druidston Haven (39141)							P				
Nolton Haven (39046)	F						P	P	F	P	P
Newgale S (39047)			P	P	P	P					
Newgale N (39049)			P	P	F	P					
Solva (39050)	F						P				
Caerfai (39142)		P				P	P	P	P	P	P
Porthclais (32686)							F				P
Aberciddy (39053)		P				P	P	P	P	P	P
Traethllyn (39143)											P
Traethllyn (32789)								P			
Porthgain (32685)							P				
Trevine (39055)	F										
Abercastle (39056)							P				F



Bathing Water	86	87	88	89	90	91	92	93	94	95	96
Abermawr (39144)											P
Goodwick (84004)	P	P									
Goodwick Harbour (39058)	P	F		P	P	P	P	P	P	P	P
Goodwick Beach (39059)	P	P		P	P	P	P	P	F	P	F
Fishguard (39060)	F	F					P				
Pwll Gwaelod (32790)								P	F	P	F
Cwm yr Eglwys (32791)								P	P	F	P
Newport Parrog Beach (39063)											F
Newport Sands South (39064)			P	P	P	P	P	P	P	P	P
Poppit Sands West (39067)	F	F		P	P	P	P	P	P	P	
Poppit Sands East (39068)	P	F		P	P	P	P	P	P	P	P
Patch (32424)						F	F	F	F	F	P
Gwbert (83515)		F	F			F	F	P	F	F	F
Gwbert (39070)		F									
Mwnt at Aberporth (32425)						P	P	P	P	P	P
Aberporth (39072)	F	F	F		F	F	F	P	F		
Aberporth E (83502)	P	P	F		F	F	P	P	F		P
Tresaith (39073)	F	F		P	F	P	P	P	P		
Penbryn (39147)				P		F	P	P	P	P	P
Llangranog (39075)	F	F	F	F	F	F	P	P	F	P	P
Cil Borth (32851)								P	P	P	P
Cwmtudu (32426)							P	P	P	P	P
Newquay N (39077)						P	F	P	P	P	P
Newquay S (39079)			P	P	P	P	P	P	P	P	P
Llanina (39146)				P	F	P	P	P	P	F	P
Little Quay (Cei Bach) (39081)	P		P	P	P	P	P	P	F	F	F
Gilfach yr Halen (32427)						P	P	P	F	P	P
Aberaeron S (39082)	P				P	P	P	P	F	P	P
Aberaeron N 4th Groyne (39083)					F	P	F	P	F	P	P
Aberaeron N (39084)	P									F	F

Bathing Water	86	87	88	89	90	91	92	93	94	95	96
Aberaeron N of outfall (N of Groynes) (39427)					F	F	P	P	F	P	F
Aberaeron Harbour (39426)							F				
Aberarth (32428)						P	P	P	P	P	P
Llanon (32429)						P	P	P	P	P	F
Llansantffraid (32430)						P	P	P	P	P	F
Llanrhystud S (39087)						P	P	P	P	P	P
Morfa Bychan at Slipway (32431)						P	P	P	P	P	P
Tanybwllch (32432)						P	P	P	F	P	P
Aberystwyth Slip (82103)			F	F		F	F	F	F		
Clarach Bay S (39095)	F	P	F	F	F	F	F	F	F	P	
Aberystwyth S (39090)			F	F	F	F	F				
Clarach Bay N (39096)	F					F	F	F	F	P	P
Ynyslas (20022)					P	P	P		P	P	P
Ynyslas (20399)					F	P	P		P	F	P
Aberdyfi (20170)	F	F	F	P	F	F	F				
Aberdyfi (20172)	F	F	F	P	F	F	P				
Aberdyfi (20171)	F	F	F	P							
Llwyngwrl (20189)				F	F	F	F				
Barmouth (20181)				F	P	P	P				
Llanaber (20025)	P		P			P	P				
Talybont (20026)	P				P		P	P			
Llanendwyn (20027)		P			P	P		P			
Black Rock Sands (22540)			P		P	P	P	P			
Garreg Wen (23253)	P	F	F		P	F	F	F	F	F	F
Criccieth E (23141)							P		F	P	P
Criccieth W (22541)			F	F	F	F	F				
Afon Wen (22543)	F	F	F								
Pen y chain (22544)	P	F	F		P		P				
Morfa Abererch (22545)		P	P		P		P		P	P	P
Pwllheli (22546)			F		P	P	P				
Traeth Crugen (22548)		P	P		P		P				

Bathing Water	86	87	88	89	90	91	92	93	94	95	96
Llanbedrog (22549)	F	F	F	P	F	F	P		P	P	P
Abersoch (22550)			F	P	P	P	P				
Abersoch (23346)						P					
Abersoch (22586)							P				
Machroes (20335)						P					
Porth Ceiriad (20334)						P					
Porth Neigwl (23331)					P	P					
Porth Neigwl (25437)							P		P	P	P
Aberdaron (22553)	P	P	P	P	P	P	P		P	P	P
Porth Oer (22555)	F				P	P	P				
Porth Iago (22556)	P				P	P	P				
Porth Colman (22557)	P				P	P	P				
Porth Tywyn (22558)			P		P	P	P				
Porth Dinllaen (22559)	F	P	F	P	F	P	P	P			
Porth Nefyn (22560)	F	P	P	P	P	P	P		P	P	P
Trefor (22561)	P	P	P		P		P				
Aberdesach (22562)	P	P			P		P				
Pontllynfi (22563)			P			P					
Morfa Dinlle (22564)	P	P									
Dinas Dinlle (23244)	P	P	P		P	P	F				
Llanddwyn (Niwbwrch) (27537)	F		P		P			P	P	P	P
Malltraeth (27556)						P					
Aberffraw (27538)	P		P	P			P				P
Porth Trece Castell (27539)	P										
Porth Nobla, Llanfaelog (27540)	P										P
Rhosneigr (27536)	P	P	F	P							
Rhosneigr (27534)	P	F	F	P	P	P	F				
Traeth Crigyll (27557)						P	P				
Silver Bay, Rhoscolyn (27541)					P						P
Borth Wen - Rhoscolyn (27542)					F			P	P	P	P
Porth y Garan (27787)	F				P						

Bathing Water	86	87	88	89	90	91	92	93	94	95	96
Porth Gwr Mawr (27544)						F	F	F			
Porth Dafarch - Trearddur (27546)	P							P	P	P	P
Holyhead Newry (27559)						P	P				
Penrhos (27817)	P				F	P					
Porth Tywyn Mawr, Sandy Beach (27547)					P					P	P
Church Bay (27548)	P		P		P					P	P
Cemaes (27529)	P	F		P	F	P		F			P
Bull Bay (27566)											F
Porth Eilian, Amlwch (27549)							F				P
Traeth Llugwy (27528)	P		P	P	P						P
Moelfre (27561)							F				P
Traeth Bychan (27527)	P			P	F		P				
Benllech (27827)			F	P	P	P	P				
Red Wharf Bay (27552)				F		F					
Llanddona (27562)	P			P	P	P		P	P	P	P
Beaumaris (27829)				F	F	F	F				
Beaumaris (27828)	P			F	P	P	F				
Beaumaris (27757)											P
Menai Bridge Pier (27568)						F	P				
Plas Menai (23290)				P	P	P	P		P	P	P
Port Dinorwic (23252)	F	F			F	F	F		P	P	F
Llanfairfechan Shore R (23245)	P	F	F	P	P	P	P	F	P	P	P
Penmaenmawr (22996)							P				
Penmaenmawr (22995)	F				P	P	P	P	P		
Penmaenmawr (23006)	P			P	P	P	P				
Penmaenmawr (23005)	P			F	F	P	F				
Morfa Conwy (23246)	F	F	F		F			P	P	F	P
Conwy Morfa (25036)	F										
Deganwy N Shelter (25034)					F	F	F	F	P	P	F
Llandudno W (25033)					F	F	F				
Llandudno N (25026)						F	P				

Bathing Water	86	87	88	89	90	91	92	93	94	95	96
Llandudno N (25185)							P				
Penrhyn Bay (25045)	F	F	F		F	F	F	F	F	F	F
Rhos Road, Colwyn Bay (25042)			P		F	P	P	P	P	P	P
Penrhos, Colwyn Bay (25041)			F		P	F	P	F	P	P	P
Colwyn Bay (25020)									P	P	P
Llanddulas (3597)			F	P	P	P	F		P	P	P
Abergele (3600)							P				
Abergele (3601)	P	P	F	P	F	P	P		P	P	P
Towyn (25436)									P	P	P
Kinmel Bay (3605)			F	F		F	F				
Rhyl Splash Point (3610)			F	P	F	F	F				
Ffrith Beach, Prestatyn (3611)	P	F	F	P	F	F				P	P
Prestatyn Barkby (3614)			F		P	F	P				
Gronant (25498)										P	P
Thurstaston Station Rd (3649)						F	F				
Point of Ayr (3617)		P		P	P	P	P		P	P	P
Caldycroft Drive (3648)						F	F				
W. Kirby (3646)						P	P				
Total Number Sampled	89	63	73	83	111	143	150	87	102	102	120
Number not Exceeding "I" standards	47	27	31	59	70	97	113	73	65	82	94
% Not Exceeding "I" standards	53	43	42	71	63	68	75	84	64	80	78

P =  $\leq 5\%$  of samples with  $> 2000/100\text{ml}$  for Faecal Coliforms and  $\leq 5\%$  of samples  $> 10000/100\text{ml}$  Total Coliforms

F =  $> 5\%$  of samples with  $> 2000/100\text{ml}$  for Faecal Coliforms and  $\leq 5\%$  of samples  $> 10000/100\text{ml}$  Total Coliforms

## Appendix 1

### **Criteria for Assessing Compliance with EC Bathing Waters Directive Standards**

1. Article 3 of the EC Directive on the quality of bathing waters (76/160/EEC) requires member states to set bathing water quality standards no less stringent than those specified as "Imperative" (I) values in the Annex to the Directive. Article 3 also requires member states to endeavour to observe "Guideline" (G) values as guidelines, whether or not there is a corresponding "I" value.
2. Article 5 sets out the detailed requirements for compliance.

For "I" value determinands:-

- a) 95% of the samples must comply with the "I" value
- b) The 5% not complying with the "I" value must not allow consecutive samples taken at statistically valid intervals to exceed the "I" value, ie. "I" value failures must be of short duration.

For "G" value determinands:-

- a) 90% of the samples must conform with the "G" value (80% in the case of total coliform and faecal coliform parameters).
- b) The 10 (or 20%) not complying with the "G" value must not allow consecutive samples taken at statistically valid intervals to not exceed the "G" value, ie. "G" value failures should be of short duration.

### **Quality Standards for Bathing Waters used in this Report**

<b><u>Parameter</u></b>	<b><u>Imperative Standard</u></b>	<b><u>Guide Standard</u></b>
<b><u>Microbiological</u></b>		
Faecal coliforms	2000/100 ml	100/100 ml
Total coliforms	10000/100 ml	500/100 ml
Faecal streptococci		100/100 ml
Salmonella	0 / litre	
Enteroviruses	0 PFU/10 litres	

Appendix 1 (contd)

<u>Parameter</u>	<u>Imperative Standard</u>	<u>Guide Standard</u>
<u>Physico-chemical</u>		
pH	6 - 9	-
Colour	No abnormal change in colour	-
Mineral Oils	No film visible on water surface and no odour	0.3 mg / litre
Surface Active Substances	No lasting foam	0.3 mg / litre
Phenols	No specific odour (0.05 mg / litre)	0.005 mg / litre
Transparency *	Extinction depth of 1m for Secchi disc - equivalent to 6.665 ftu (turbidity)	Extinction depth of 2m - equivalent turbidity value not yet calculated
Tarry Residues and Persistent Floating Solids		Must be absent

\* Welsh Region has been granted a derogation for transparency at all its bathing waters so is not required to comply with these standards.

## Appendix 2

**Identified Bathing Water Sample Point Details**

Bathing water	Sample Point NGR	Sample Point Number	DoE Number
Jacksons Bay, Barry	ST1220066570	19055	36100
Whitmore Bay Central, Barry	ST1145066250	19034	36200
Cold Knap, Barry	ST0965066400	19037	36300
Southerndown (Centre)	SS8840072900	19100	36400
Trecco Bay Central, Porthcawl	SS8310076300	19114	36500
Sandy Bay Central, Porthcawl	SS8240076500	19117	36600
Rest Bay, Porthcawl	SS8000077900	19122	36700
Aberafan Slip	SS7390089600	19051	36800
Swansea Bay at Slip	SS 6440092100	74006	36900
Bracelet Bay, Mumbles Head	SS6300087100	39105	37000
Limeslade Bay	SS6250087000	39106	37100
Langland Bay West	SS6060087100	39109	37200
Caswell Bay Central	SS5910087400	39111	37300
Oxwich Bay West End	SS5070086200	39123	37400
Port Eynon Bay West	SS4720084800	39127	37500
Rhossili at Hillend	SS4140090000	74010	37600
Pembrey, Cefn Sidan	SS4000099800	39005	37700
Pendine East	SN2380007400	39010	37800
Amroth Central	SN1670006800	39013	37900
Saundersfoot Beach Slip	SN1410004700	39017	38000
Tenby North, Gosker Rock	SN1345000800	39020	38100
Tenby South, Old Outfall	SS1325099850	39024	38200
Broadhaven Central	SM8610013800	84231	38300
Newgale Central	SM8460021700	39048	38400
Whitesands Central	SM7300027000	84232	38500
Newport Sands North	SN0530040700	39065	38600
Poppit Sands West	SN1520048900	39067	38630
Aberporth Beach West	SN2580051700	39072	38660
Tresaith	SN2780051700	39073	38670



Bathing water	Sample Point NGR	Sample Point Number	DoE Number
Treath Gwyn, New Quay	SN3980059700	39080	38700
Aberystwyth South	SN5790081400	39091	38800
Aberystwyth North	SN5830082200	39093	38900
Borth, Opposite Hotel	SN6060090100	20023	39000
Aberdyfi	SN6072095800	20171	39050
Tywyn Main Beach Access	SH5767000320	20019	39100
Fairbourne	SM9240013600	20402	39200
Barmouth Coastguard	SH6084015900	20014	39300
Talybont	SH5775021100	20026	39350
Duffryn	SH5671022580	20027	39360
Llandanwg Central	SH5669028180	20028	39400
Harlech North	SH5676031480	22596	39500
Morfa Bychan, Black Rock Sands	SH5421035950	22539	39600
Criccieth East	SH5033338075	23142	39700
Pwllheli	SH3710034070	22589	39800
Abersoch South	SH3168027720	22552	39900
Morfa Dinlle	SH4349056690	22564	39970
Rhosneigr	SH3237072120	27536	39990
Trearddur Bay	SH2556078910	27532	40000
Benllech	SH5268082560	27551	40100
Penmaenmawr	SH7180076930	22995	40180
Llandudno West Shore	SH7655081650	25032	40200
Llandudno North Shore	SH7918082270	25046	40300
Colwyn Bay, Op. Railway Underpass	SH8584079170	25049	40400
Sandy Cove, Kinnel Bay	SH9780080600	3604	40500
Rhyl, High Street	SJ0020082600	3608	40600
Prestatyn Central, West Car Park	SJ0585084200	3612	40700
West Kirby, Dee Lane	SJ2100086800	3646	40750

## Appendix 3

**Non-Identified Bathing Waters Sites Sampled in 1996**

Bathing Water	Sample Point NGR	Sample Point Number
Penarth Yacht Club	ST1895070850	19029
St Marys Well Bay	ST1785067350	19032
Bendricks Beach	ST1360067000	19076
Watchouse Bay	ST1060066200	68603
Fontygary Bay	ST0525065750	19038
Limpert Bay	ST0190066200	19147
Llantwit Major Beach	SS9550067300	74050
Newton Bay	SS8380076940	19112
Aberafan East	SS7445088950	19050
Jersey Marine East	SS7090091600	74026
Jersey Marine Central	SS7040092500	39153
Jersey Marine West	SS6920092000	39097
Swansea Bay County Hall	SS6530092000	74060
Swansea Bay Sketty Lane	SS6290091400	39154
Swansea Bay Black Pill	SS6320089800	39101
Mumbles Knap Rock	SS6250087800	39103
Mumbles Head Pier	SS6320087400	39104
Brandy Cove	SS5850087400	39170
Pwll Du	SS5750087000	39114
Three Cliffs Bay West	SS5330087600	39117
Broughton Beach	SS4190093000	74025
Llanelli Beach	SS4960099500	39001
Burry Port Beach	SN4460000200	39003
St Ishmael	SN3650007500	88503
Llanstephen Beach	SS3550010700	39008
Ferryside Beach	SN3050010400	39007
Wisemans Bridge	SN1440006000	32797
Coppett Hall Beach	SN1430005300	32421

Bathing Water	Sample Point NGR	Sample Point Number
Lydstep N Beach	SS0920098300	39570
Skrinkle	SS0804097300	39423
Manorbier Beach	SS0580097400	39027
Freshwater East	SS0220097900	39029
Barafundle	SR9920095000	39136
Broad Haven South	SR9790093900	32422
Freshwater West	SR8820099700	39031
West Angle	SM8520003300	39032
Gelliswick	SM8870005600	39037
Sandy Haven	SM8570007300	39192
Dale	SM8130005700	39040
Marloes	SM7850007500	32788
Martins Haven	SM7610009200	39041
St. Brides Haven	SM8020011100	39042
Little Haven	SM8570012800	39043
Nolton Haven	SM8580018800	39046
Caerfai	SM7600024400	39142
Porthclais	SM7430023800	32686
Abereiddy	SM7970031300	39053
Traethllyn	SM8010031900	39143
Abercastle	SM8520033500	39056
Abermawr	SM8810034600	39144
Goodwick Harbour	SM9480038200	39058
Goodwick Beach	SM9480037800	39059
Pwll Gwaelod	SN0050039900	32790
Cwm yr Eglwys	SN0150040100	32791
Newport Parrog Beach (Car Park Slip)	SN0510039700	39063
Newport Sands South	SN0540040500	39064
Poppit Sands East	SN1560049200	39068
Patch	SN1627048520	32424
Gwbirt	SN1590050350	83515

Bathing Water	Sample Point NGR	Sample Point Number
Mwnt at Aberporth	SN1930051900	32425
Aberporth E	SN2590051700	83502
Penbryn	SN2910052400	39147
Llangranog	SN3100054300	39075
Cil Borth	SN3110054400	32851
Cwmtudu	SN3555057650	32426
Newquay N	SN3900060200	39077
Newquay S	SN3910059900	39079
Llanina	SN4030059800	39146
Little Quay (Cei Bach)	SN4100059800	39081
Gilfach yr Halen	SN4354061360	32427
Aberaeron S	SN4530062800	39082
Aberaeron N 4th Groyne	SN4550063400	39083
Aberaeron N	SN4570063500	39084
Aberaeron N of outfall (N of Groynes)	SN4620063500	39427
Aberarth	SN4765063870	32428
Llanon	SN5067066750	32429
Llansantffraid	SN5086067180	32430
Llanrhystud S	SN5230069100	39087
Morfa Bychan at Slipway	SN5652077450	32431
Tanybwlich	SN5790080650	32432
Clarach Bay N	SN5850084000	39096
Ynyslas	SN6030092800	20022
Ynyslas Estuary	SN6120094300	20399
Garreg Wen	SH5607037060	23253
Criccieth E	SH5017537967	23141
Morfa Abererch	SH4031035790	22545
Llanbedrog	SH3339031440	22549
Porth Neigwl	SH2808026310	25437
Aberdaron	SH1733026260	22553
Porth Nefyn	SH3017040840	22560

Bathing Water	Sample Point NGR	Sample Point Number
Llanddwyn (Niwbwrch)	SH4034063050	27537
Traeth Mawr, Aberffraw	SH3524067640	27538
Porth Nobla, Llanfaelog	SH3292071160	27540
Silver Bay, Rhoscolyn	SH2925075160	27541
Borth Wen - Rhoscolyn	SH2732075000	27542
Porth Dafarch - Trearddur	SH2330079900	27546
Porth Tywyn Mawr, Sandy Beach, Llanfwrog	SH2867085160	27547
Church Bay	SH2997089400	27548
Cemaes	SH3732093620	27529
Bull Bay	SH4268094340	27566
Porth Eilian, Amlwch	SH4768092960	27549
Traeth Llugwy	SH4990087520	27528
Moelfre	SH5133086250	27561
Llanddona	SH5660081210	27562
Beaumaris	SH6095076000	27757
Plas Menai	SH5024066120	23290
Port Dinorwic	SH5217067370	23252
Llanfairfechan Shore R	SH6802075810	23245
Morfa Conwy	SH7574078840	23246
Deganwy N Shelter	SH7750079450	25034
Penrhyn Bay	SH8312081630	25045
Rhos Road, Colwyn Bay	SH8450080490	25042
Penrhos, Colwyn Bay	SH8493079610	25041
Colwyn Bay	SH8527079370	25020
Llanddulas	SH9070078800	3597
Abergele	SH9445079000	3601
Towyn	SH9650079600	25436
Ffrith Beach, Prestatyn	SJ0460083600	3611
Gronant	SJ0950084800	25498
Point of Ayr	SJ1210085900	3617

## Appendix 4

**SUMMARY DATA FOR IDENTIFIED BATHING WATERS** (Coliform results "confirmed")

Bathing water	Faecal Coliforms / 100ml			Total Coliforms /100ml			Salmonella		Viruses PFU/10 litres			Faecal Streptococci /100ml		
	No. samples	Min	Max	No. samples	Min	Max	No. samples	+ve result	No. samples	Min	Max	No. samples	Min	Max
Jacksons Bay	20	82	2790	20	490	7600	2	0	2	<1	2	20	36	2600
Whitmore Bay	20	73	900	20	376	2800	2	0	0			20	38	640
Cold Knap	20	18	456	20	118	1006	2	0	0			20	12	720
Southerndown	20	<10	400	20	<10	2000	2	0	0			20	1	144
Trecco Bay	20	9	416	20	<10	610	2	0	0			20	<1	92
Sandy Bay	20	<10	447	20	<10	1445	2	0	0			20	1	368
Rest Bay	20	<10	250	20	<10	790	2	0	0			20	1	138
Aberafan	20	<10	600	20	<10	1600	2	0	0			20	<1	262
Swansea Bay	20	34	6600	20	71	14500	2	0	2	<1	<1	20	12	900
Bracelet Bay	20	<10	845	20	36	2400	2	2	0			20	1	181
Limeslade Bay	20	<10	1560	20	18	19800	2	1	0			20	6	324
Langland Bay	20	<10	5100	20	18	5500	2	1	0			20	3	198
Caswell Bay	20	<10	1836	20	<10	7650	2	1	0			20	<1	356
Oxwich Bay	20	<10	490	20	<10	740	2	0	0			20	<1	62
Port Eynon Bay	20	<10	306	20	<10	360	2	0	0			20	<1	80

Bathing water	Faecal Coliforms / 100ml			Total Coliforms /100ml			Salmonella		Viruses PFU/10 litres			Faecal Streptococci /100ml		
	No. samples	Min	Max	No. samples	Min	Max	No. samples	+ve result	No. samples	Min	Max	No. samples	Min	Max
Rhossili	20	<10	114	20	<10	160	2	0	0			20	<1	52
Pembrey	20	<10	224	20	<10	390	2	0	0			20	<1	19
Pendine	20	<10	580	20	<10	2100	2	0	0			20	<1	159
Amroth	20	<10	802	20	<10	2400	2	0	0			20	<1	124
Saundersfoot	20	<10	2880	20	<10	3800	2	0	0			20	<1	476
Tenby North	20	<10	240	20	<10	270	2	0	0			20	<1	106
Tenby South	20	<10	2700	20	<10	3200	2	0	0			20	2	560
Broadhaven	20	<10	155	20	<10	400	2	0	0			20	<1	157
Newgale	20	9	275	20	<10	590	2	0	0			20	<1	134
Whitesands	20	<10	270	20	<10	330	2	0	0			20	<1	175
Newport North	20	<10	3300	20	<10	3500	2	0	0			20	<1	790
Poppit Sands	20	<10	887	20	<10	2600	2	0	0			20	1	192
Aberporth	20	<10	288	20	<10	380	2	0	0			20	<1	238
Tresaith	20	<10	973	20	27	4400	2	0	0			20	4	850
Traeth Gwyn, New Quay	20	<10	450	20	<10	490	2	0	0			20	<1	116
Aberystwyth South	20	<10	1209	20	<10	8200	2	0	0			20	<1	308
Aberystwyth North	20	<10	160	20	<10	5000	2	0	0			20	<1	113

Bathing water	Faecal Coliforms / 100ml			Total Coliforms /100ml			Salmonella		Viruses PFU/10 litres			Faecal Streptococci /100ml		
	No. samples	Min	Max	No. samples	Min	Max	No. samples	+ve result	No. samples	Min	Max	No. samples	Min	Max
Borth	20	<10	842	20	<10	6500	4	0	2	<1	<1	20	<1	189
Aberdyfi	20	<10	11410	20	<10	>20000	2	0	2	<1	<1	20	<1	1860
Tywyn	20	<10	710	20	<10	8100	2	0	0			20	<1	580
Fairbourne	20	<10	918	20	<10	7400	2	0	0			20	<1	153
Barmouth	20	<10	240	20	<10	510	2	0	0			20	<1	380
Talybont	20	9	136	20	9	230	2	0	0			20	<1	103
Duffryn/Llanendwyn	20	<10	127	20	<10	220	2	1	0			20	<1	25
Llandanwg	21	<10	1353	20	<10	2560	2	0	0			21	<1	960
Harlech	21	<10	>20000	20	<10	>20000	2	0	2	1	<1	21	<1	>20000
Morfa Bychan	20	9	775	20	<10	3680	2	0	2	<1	<1	20	<1	1610
Criccieth	21	9	3500	20	<10	9120	2	1	0			21	<1	520
Pwllheli	20	<10	2070	20	<10	2070	2	0	0			20	<1	320
Abersoch	21	<10	509	20	<10	1018	2	0	0			21	<1	1040
Morfa Dinlle	20	<10	666	20	<10	1600	2	0	0			20	<1	580
Rhosneigr	20	<10	124	20	<10	124	2	0	2	<1	<1	20	<1	132
Trearddur Bay	20	<10	512	20	<10	955	2	0	0			20	<1	620
Benllech	20	<10	909	20	<10	5130	2	0	2	<1	<1	20	<1	1590
Penmaenmawr	20	<10	459	20	<10	842	2	0	2	<1	<1	20	<1	320



Bathing water	Faecal Coliforms / 100ml			Total Coliforms /100ml			Salmonella		Viruses PFU/10 litres			Faecal Streptococci /100ml		
	No. samples	Min	Max	No. samples	Min	Max	No. samples	+ve result	No. samples	Min	Max	No. samples	Min	Max
Llandudno West Shore	20	<10	1178	20	<10	>20000	2	0	2	<1	1	20	1	480
Llandudno North Shore	20	9	550	20	<10	584	2	0	0			20	1	510
Colwyn Bay	20	<10	612	20	10	955	2	0	2	<1	28	20	3	350
Sandy Cove	20	<10	761	20	<10	2070	2	0	1	<1	<1	20	1	450
Rhyl	20	10	1228	20	10	2080	2	0	2	<1	<1	20	1	270
Prestatyn	20	<10	512	20	<10	1440	2	0	0			20	<1	900
West Kirby	20	10	14000	20	30	>20000	2	1	2	<1	1	20	<10	1100

**SUMMARY DATA FOR NON-IDENTIFIED BATHING WATERS \***

Bathing water	Faecal Coliforms / 100ml			Total Coliforms /100ml			Faecal Streptococci /100ml		
	No. samples	Min	Max	No. samples	Min	Max	No. samples	Min	Max
Penarth Yacht Club	20	60	6900	20	210	>30000	20	20	7200
St Marys Well Bay	20	400	4800	20	740	16800	20	40	1040
Bendricks Beach	20	310	>30000	20	680	>30000	20	<10	9100
Watchouse Bay	20	100	1900	20	240	12600	20	10	630
Fontygary Bay	20	<10	390	20	60	1030	20	<10	190
Limpert Bay	20	<10	1150	20	40	1500	20	<10	180
Llantwit Major Beach	20	<10	1580	20	60	3800	20	<10	240
Newton Bay	20	3	540	20	<10	1340	20	2	270
Aberafan East	21	<10	890	21	10	2900	21	<10	210
Jersey Marine East	20	30	4600	20	30	6500	20	10	730
Jersey Marine Central	21	<10	1840	21	10	5900	21	10	780
Jersey Marine West	20	10	1360	20	10	2100	20	<10	540
Swansea Bay County Hall	21	0	>100000	21	0	>100000	20	0	3800
Swansea Bay Sketty Lane	21	4	>100000	21	4	>100000	20	6	1000
Swansea Bay Black Pill	21	53	4900	21	89	11000	20	3.2	480
Mumbles Knap Rock	21	10	2500	21	10	6500	20	2	2600
Mumbles Head Pier	21	32	4500	21	130	4500	20	2	1900
Brandy Cove	16	0	>100000	16	0	>100000	15	0	5100
Pwll Du	16	3	240	16	6	600	15	0	70
Three Cliffs Bay	16	0	1500	16	0	5000	15	0	328
Broughton Beach	21	1	2100	21	1	2100	20	0	253
Llanelli Beach	20	450	>24000	20	600	33800	20	20	5000
Burry Port Beach	20	10	9730	20	20	13900	20	<10	1550
St Ishmael	20	<10	8500	20	<10	>30000	20	<10	780
Llanstephen Beach	20	<10	11800	20	30	>30000	20	<10	1000
Ferryside Beach	20	<10	7000	20	10	>27000	20	<10	1520

Bathing water	Faecal Coliforms / 100ml			Total Coliforms /100ml			Faecal Streptococci /100ml		
	No. samples	Min	Max	No. samples	Min	Max	No. samples	Min	Max
Wisemans Bridge	20	6	670	20	10	>3000	20	1	960
Coppett Hall Beach	20	<10	2200	20	<10	4100	20	<1	286
Lydstep	20	1	274	20	2	310	20	<1	80
Skrinkle	20	1	530	20	1	1540	20	<1	270
Manorbier	20	<10	1500	20	<10	>3000	20	3	480
Freshwater East	20	1	850	20	3	1600	20	<1	840
Barafundle	20	3	>3000	20	3	>3000	20	<1	140
Broad Haven South	20	0	158	20	1	240	20	<1	270
Freshwater West	20	<1	260	20	<1	420	20	<1	16
West Angle	20	3	175	20	5	320	20	<1	173
Gelliswick	20	10	1780	20	10	7800	20	<1	1040
Sandy Haven	20	2	1840	20	<10	4700	20	1	1860
Dale	20	9	560	20	<10	1760	20	1	160
Marloes	20	<1	140	20	1	320	20	<1	50
Martins Haven	20	<1	160	20	<1	190	20	<1	80
St. Brides Haven	20	7	490	20	8	820	20	1	280
Little Haven	20	<10	3400	20	<10	13800	20	3	1260
Nolton Haven	20	<10	1800	20	<10	2480	20	<1	980
Caerfai	20	<1	4000	20	<1	6600	20	<1	>3000
Porthclais	20	4	>3000	20	4	3700	20	2	610
Abereiddy	20	<1	310	20	<1	350	20	<1	140
Traethllyn	20	<1	740	20	1	740	20	<1	130
Abercastle	20	1	4500	20	5	>24000	20	4	>3000
Abermawr	20	3	240	20	3	1350	20	1	>300
Goodwick Harbour	20	2	3700	20	3	16100	20	<1	1010
Goodwick Beach	20	<10	2780	20	10	4600	20	7	1550
Pwll Gwaelod	20	<10	11200	20	20	25100	20	2	>3000
Cwm yr Eglwys	20	<1	8200	20	<10	>21000	20	<1	1260
Newport Parrog	20	<10	>30000	20	<10	>30000	20	1	>3000
Newport Sands South	20	8	>3000	20	<10	>3000	20	9	190

Bathing water	Faecal Coliforms / 100ml			Total Coliforms /100ml			Faecal Streptococci /100ml		
	No. samples	Min	Max	No. samples	Min	Max	No. samples	Min	Max
Poppit Sands East	20	<1	>3000	20	10	4800	20	1	430
Patch	20	<10	1120	20	30	10440	20	<10	610
Gwbert	20	80	14900	20	440	>24000	20	<10	900
Mwnt at Aberporth	20	<10	330	20	<10	330	20	<10	210
Aberporth E	20	<10	790	20	<10	1800	20	2	5600
Penbryn	20	<10	4600	20	<10	9800	20	<10	3100
Llangranog	20	<10	4100	20	<10	10440	20	<10	2580
Cil Borth	20	<10	1500	20	<10	3300	20	<10	1030
Cwmtudu	20	<10	1010	20	<10	7000	20	<10	400
Newquay N	20	<10	790	20	<10	790	20	<10	>3000
Newquay S	20	<10	600	20	<10	1300	20	<10	260
Llanina	20	<10	1800	20	<10	4100	20	<10	>3000
Little Quay (Cei Bach)	20	<10	4900	20	<10	9700	20	<10	490
Gilfach yr Halen	20	<10	5500	20	<10	5500	20	<10	250
Aberaeron S	20	<10	6700	20	<10	9300	20	<10	1890
Aberaeron N 4th Groyne	20	<10	5800	20	<10	8400	20	<10	>3000
Aberaeron N	20	70	>30000	20	210	>30000	20	20	>30000
Aberaeron N of outfall (N of Groynes)	20	<10	>30000	20	10	>30000	20	<10	>30000
Aberarth	20	<10	12800	20	<10	4800	20	<10	>3000
Llanon	20	<10	20700	20	<10	>30000	20	<10	>3000
Llansantffraid	20	<10	22400	20	<10	25400	20	<10	14400
Llanrhystud S	20	<10	3060	20	<10	6800	20	<10	830
Morfa Bychan at Slipway	20	<10	260	20	<10	310	20	<10	200
Tanybwllch	20	<10	240	20	<10	3900	20	<10	240
Clarach Bay N	20	<10	2060	20	<10	7200	20	<10	1180
Ynyslas	20	<10	3400	20	<10	3700	20	<10	730
Ynyslas Estuary	20	<10	1350	20	<10	4800	20	<10	430
Garreg Wen	21	<10	10300	21	<10	15000	20	<10	3200

Bathing water	Faecal Coliforms / 100ml			Total Coliforms /100ml			Faecal Streptococci /100ml		
	No. samples	Min	Max	No. samples	Min	Max	No. samples	Min	Max
Criccieth E	21	<10	1100	21	<10	1500	20	<10	482
Morfa Aberech	21	<10	1380	21	<10	3900	20	<10	791
Llanbedrog	20	<10	2950	20	<10	14900	20	<10	2900
Porth Neigwl	20	<10	209	20	<10	291	20	<10	4400
Aberdaron	20	<10	473	20	<10	1050	20	<10	445
Porth Nefyn	21	<10	2790	21	<10	3100	20	<10	4800
Llanddwyn (Niwbwrch)	20	<10	500	20	<10	518	20	<10	291
Traeth Mawr, Aberffraw	21	<10	1400	21	<10	3800 <sup>a</sup>	21	<10	955
Porth Nobla	22	<10	1080	22	<10	1110	22	<10	891
Silver Bay	21	<10	1430	21	<10	1430	21	<10	745
Borth Wen	20	<10	364	20	<10	364	20	<10	236
Porth Dafarch	21	<10	840	21	<10	1050	21	<10	436
Sandy Beach	20	<10	682	20	<10	718	20	<10	1230
Church Bay	20	<10	273	20	<10	873	20	<10	555
Cemaes	22	<10	1500	22	<10	>3000	22	<10	2100
Bull Bay	21	<10	7000	21	<10	7400	21	<10	6300
Porth Eilian	21	<10	1470	21	<10	1860	21	<10	2200
Traeth Llugwy	22	<10	2600	22	<10	3400	22	<10	1200
Moelfre	21	<10	1920	21	20	4500	21	<10	1670
Llanddona	20	<10	809	20	<10	809	20	<10	736
Beaumaris	21	<10	1990	21	40	3400	21	<10	2140
Plas Menai	20	<10	2460	20	<10	7420	20	<10	1190
Port Dinorwic	20	<10	2700	20	<10	5200	20	<10	1650
Llanfairfechan	20	<10	1550	20	<10	3600	20	<10	827
Morfa Conwy	20	<10	1400	20	<10	1420	20	<10	400
Deganwy N Shelter	20	<10	2850	20	20	6600	20	<10	1173
Penrhyn Bay	20	<10	46000	20	10	160000	20	<10	15600
Rhos Road, Colwyn Bay	20	<10	1360	20	<10	1430	20	<10	1160
Penrhos, Colwyn Bay	20	<10	700	20	10	1420	20	<10	1050
Colwyn Bay	20	<10	464	20	<10	3300	20	<10	209

Bathing water	Faecal Coliforms / 100ml			Total Coliforms /100ml			Faecal Streptococci /100ml		
	No. samples	Min	Max	No. samples	Min	Max	No. samples	Min	Max
Llanddulas	20	20	6600	20	27	11600	20	<10	1400
Abergele	20	<10	1140	20	10	3000	20	<10	2700
Towyn	20	<10	782	20	<10	1720	20	<10	136
Ffrith Beach	20	<10	1970	20	10	2450	20	<10	155
Gronant	20	<10	1350	20	<10	2800	20	<10	318
Point of Ayr	20	<10	1120	20	20	1400	20	<10	300

\* "Confirmed" results reported for those Coliform samples exceeding 2000 per 100ml for Faecal coliforms and 10,000 per 100ml for Total Coliforms (except for all Swansea Bay sites and some others where "presumptive" results only are reported).

## APPENDIX 6

## Enterovirus Trigger

It was considered desirable that there should be a trigger mechanism to initiate enterovirus monitoring in the event of a deterioration in monitored water quality within the bathing season.

The following criteria triggered enterovirus monitoring:-

1. Non-compliance with faecal coliform or total coliform I-value standards within the bathing season (ie. two or more samples out of the planned twenty exceeding the I-value numerical limit during the monitoring period), and/or
2. Significant increase in the amount of sewage derived litter observed in a 10 metre band either side of the Bathing Water sample transect. A scoring system based on the Gerber assessment for sewage debris was used. Details are given below.

### "GERBER" ASSESSMENT

The "Gerber" assessment consists of a visual examination of an area of beach (i) extending approximately 50 metres to one side of the sample point along the strandline, (ii) in a 3 metre wide strip down the beach from the strandline to the water's edge, and (iii) 50 metres back to the sampling point along the water's edge. In addition collection of some information regarding weather conditions and beach use is made. The parameters examined with the determinand numbers are listed below. Those used to set the basis for a virus trigger are marked with "+".

4 Time of High Tide (Hours)	+ 9065 Sewage Debris at Water's Edge
28 Wind Direction (Degrees)	+ 9066 Condoms/Tampon Applicators at Water's Edge
76 Water Temperature (Celsius)	+ 9067 Sanitary Towels at Water's Edge
1192 Sea State	+ 9068 Noxious Sewage Odours at Water's Edge
2153 Cloud Cover	9069 Terrestrially Derived Litter at Water's Edge
2159 Wind Speed	9071 Oil and Tar at Water's Edge
9031 Dead Marine Life at Strandline	9076 Number of Bathers (No.)
9032 Animal Faeces at Strandline	9077 Number of Beach Users (No.)
+ 9033 Intact Human Faeces at Strandline	9078 Number Taking Part in Water Sports (No.)
+ 9034 Grease/Scum Slick at Strandline	9170 Salinity (ppt)
+ 9035 Sewage Debris at Strandline	9247 Time Relative to High Water (Hours)
+ 9036 Condoms/Tampon Applicators at Strandline	
+ 9037 Sanitary Towels at Strandline	
+ 9038 Noxious Sewage Odours at Strandline	
9039 Terrestrially Derived Litter at Strandline	
9041 Oil and Tar at Strandline	
9045 Dead Marine Life at Strandline to Water's Edge	
9046 Animal Faeces at Strandline to Water's Edge	
+ 9047 Intact Human Faeces at Strandline to Water's Edge	
+ 9048 Grease/Scum Slick at Strandline to Water's Edge	
+ 9049 Sewage Debris at Strandline to Water's Edge	
+ 9051 Condoms/Tampon Applicators at Strandline to Water's Edge	
+ 9052 Sanitary Towels at Strandline to Water's Edge	
+ 9053 Noxious Sewage Odours at Strandline to Water's Edge	
9054 Terrestrially Derived Litter at Strandline to Water's Edge	
9055 Oil and Tar at Strandline to Water's Edge	
9061 Dead Marine Life at Water's Edge	
9062 Animal Faeces at Water's Edge	
+ 9063 Intact Human Faeces at Water's Edge	
+ 9064 Grease/Scum Slick at Water's Edge	

All determinands above which have been listed without units are measured on a scale of 0 - 3 as follows:-

0 - absence of coded material

1 - trace of coded material

2 - some at intervals (1-5 items)

3 - sufficient to be objectionable (>5 items)

Listed below are brief notes to clarify filling in the log sheet for Garber conditions:

1. HW

Time of high water in British Summer Time nearest to the time of sampling, in hours and minutes.

2. Wind

Wind direction using the first 2 digits of compass bearing.

NORTHERLY = 00 (0 degrees)

EASTERLY = 09 (90 degrees)

SOUTHERLY = 18 (180 degrees)

WESTERLY = 27 (270 degrees)

eg a wind blowing from the North West = 31

3. Temperature

Water temperature degrees Celsius

4. STASEA

State of sea coded as:

0 Calm (Glassy)	Wave height	0 m
1 Calm (Rippled)	Wave height	0 - 0.1 m
2 Smooth (Wavelets)	Wave height	0.1 - 0.5 m
3 Light	Wave height	0.5 - 1.25 m
4 Moderate	Wave height	1.25 - 2.5 m
5 Rough	Wave height	2.5 - 4.0 m
6 Very Rough	Wave height	4.0 - 6.0 m
7 High	Wave height	6.0 - 9.0 m
8 Very High	Wave height	9.0 - 14.0 m
9 Phenomenal	Wave height	Over 14.0 m

5. Cloud Cover

Amount of cloud cover recorded on a scale of 0 to 4:

0 - Sun obscured

1 - Weak sun, no shadows

2 - Weak sun, shadows

3 - Sun occasionally obscured by clouds

4 - Bright sunshine

6. Wind Speed

Beaufort scale wind force:

0 - Calm

1 - Light airs

2 - Light breeze

3 - Gentle breeze

4 - Moderate breeze

5 - Fresh breeze

6 - Strong breeze



## 7. Gerber Scheme Coded Materials

A transect should be examined of 50 metres either side of an imaginary line passing at a right angle from the shore to the sea through the grid reference if the sampling point.

The quantification of coded materials is clearly subjective but to attempt some standardisation the following has been suggested:-

- 0 - Absence of coded materials.
- 1 - Trace of coded materials
- 2 - Some at intervals (1 - 5 items)
- 3 - Sufficient to be objectionable (> 5 items)

Position on beach.

Strandline of last high tide  
Between strandline and water's edge  
At water's edge

### 7a Dead Marine Life

Includes crabs, lug worms, heart urchins, etc. Large items such as dolphins and porpoises etc should be reported to the relevant Pollution Control Officer.

### 7b Animal Faeces

This refers mainly to dog, horse and sheep droppings. Rafts of dried out sheep droppings brought in by high tides do give rise to complaint at some beaches.

### 7c Intact Human Faeces

Record even small faecal particulates that may arise from crude outfalls.

### 7d Grease / Scum / Slick

This should be sewage derived grease/scum, usually in a visible plume or slick from an outfall.

### 7e Sewage Debris

This is sewage derived materials other than contraceptives, tampon applicators and intact sanitary towels. It may include cotton buds, toilet paper, hair, backing strips of sanitary towels etc.

### 7f Condoms / Tampon Applicators

Often only the thick rubber rings from condoms may be found.

### 7g Sanitary Towels

Complete sanitary towels with absorbant material still present.

### 7h Noxious Sewage Odours

Distinctive sewage smells - not to be confused with decaying seaweed or agricultural smells.

### 7i Terrestrially Derived Litter

Litter and debris eg cans, plastic containers, paper, wood etc which is not likely to have been discharged via a sewage outfall.

7j Oil and Tar

Diesel and lubricating oil and the washings from sea going tankers, may be semi solid or globules.

Non Gerber Determinands

8. Number of Bathers

The number of people in the water.

9. Number of Beach Users

The number of people not in the water but on or near the beach.

10. Number Water Contact Sports

The number of people windsurfing, water skiing, jet skiing, tubing, surfing etc.