



ISSN 1018-5593

EUROPEAN COMMISSION

QUALITY OF BATHING WATER 1994



CEE: XXIII/98

EUR 15976

Paper whitened without chlorine

European Commission

Environment and quality of life

QUALITY OF BATHING WATER 1994

Directorate-General
Environment, Nuclear Safety and Civil Protection

1995

EUR 15976 EN

**Published by the
EUROPEAN COMMISSION
Directorate-General
Environment, Nuclear Safety and Civil Protection
B-1049 Brussels**

LEGAL NOTICE

Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of the following information

Cataloguing data can be found at the end of this publication

Luxembourg: Office for Official Publications of the European Communities, 1995

ISBN 92-827-4046-3

© ECSC-EC-EAEC, Brussels • Luxembourg, 1995

Printed in Belgium

Contents

Report

	<i>Page</i>
Note to the reader	5
Introduction	9
Summary	13
Directive 76/160/EEC — Annex	19
Belgium	23
Denmark	31
Germany	39
Greece	49
Spain	57
France	65
Ireland	73
Italy	79
Luxembourg	85
The Netherlands	91
Portugal	99
United Kingdom	107

Maps

	<i>Map number</i>
Belgium: Coastal and internal areas	1
Denmark: Coastal and internal areas	2
Germany: North: coastal and internal areas	3
South: coastal and internal areas	4
Greece: Coastal and internal areas	5
Spain: Coastal and internal areas	6
France: Coastal areas	7
Internal areas	8
Ireland: Coastal and internal areas	9
Italy: North: coastal and internal areas	10
South: coastal and internal areas	11
Luxembourg: Internal areas	1
The Netherlands: Coastal and internal areas	12
Portugal: : Coastal and internal areas	6
United Kingdom: Coastal areas	9

Note to the reader

The annual report published by the Commission is intended to inform the public of the quality of bathing water throughout the Community on the basis of a summary of the results supplied by the Member States. In order to provide objective and comparable information, the conformity of bathing areas is assessed against the values given in the Annex to Directive 76/160/EEC.

Article 1 of that Directive defines bathing water:

'Bathing water' means:

'all running or still freshwaters or parts thereof and sea water, in which:

bathing is explicitly authorized by the competent authorities of each Member State, or

bathing is not prohibited and is traditionally practised by a large number of bathers'.

The Member States are therefore required to submit data on the quality of the water covered by this definition.

The Directive sets two kinds of values: mandatory values which must be observed, and more stringent guide values which constitute quality objectives which Member States should endeavour to observe.

This report does not refer to the stricter national values which some Member States have set in their national legislation under Article 7 of the Directive.

According to Article 5 of this Directive, bathing water is deemed to conform to the relevant parameters:

'if samples of that water, taken at the same sampling point and at the intervals specified in the Annex, show that it conforms to the parametric values for the quality of the water concerned, in the case of:

95% of the samples for parameters corresponding to those specified in column I of the Annex;

90% of the samples in all other cases with the exception of the "total coliform" and "faecal coliform" parameters where the percentage may be 80%;

and if, in the case of the 5, 10 or 20% of the samples which do not comply:

the water does not deviate from the parametric values in question by more than 50%, except for microbiological parameters, pH and dissolved oxygen;

consecutive water samples taken at statistically suitable intervals do not deviate from the relevant parametric values.⁷

Much more effort needs to be made to comply fully with the requirements of the Directive. Moreover, all too often data are supplied for certain particular parameters whereas data should be supplied for all parameters with a mandatory and/or a guide value at the minimum frequency specified in the Annex to the Directive.

However, in this report, particular emphasis is placed on the first two microbiological parameters, since these are easy to compare between Member States.

The Annex to the Directive offers a choice between various methods of analysis for these parameters as well as for some others. Recent scientific progress and many years' experience with implementation of the Directive have revealed various problems with the comparability of the methods used and their implementation. To avoid and help the laboratories in the Member States to overcome these difficulties, the Commission organized comparative studies of microbiological methods of analysing sea water. This work was carried out under the measurements and testing programme and took two years. The results will be published shortly.

It has therefore to be accepted that the results in this report are subject to a certain degree of imprecision dictated by the state of the art and that this could be significant, particularly in borderline cases. Nevertheless, the methods of analysis used by the Member States are prescribed in the Directive and although there is room for improvement in the comparability of the data, in no way does this detract from the value of the information they provide.

Finally, attention should be drawn to the fact that some Member States withdraw from their monitoring programme areas for which no analysis results are available. This practice is inadequate as these areas are still covered by the definition in Article 1 of the Directive. Moreover, this gives rise to a number of data comparability problems. Consequently, the areas missing for whatever reason must be specified as 'not sampled' in the database.

The report is supplemented by a series of maps.

The report describes the general quality of bathing water in the Community as well as the specific situation in each Member State for the 1994 season. It also contains tables summarizing back to 1991 the results of analysis of the microbiological and physicochemical parameters. For each of these parameters, the number of bathing areas sampled and the number of 'non-complying areas' are detailed.

A bathing area is classified as not complying only if more than 5% of the samples taken in the course of the bathing season fail to conform with the 'mandatory (I) values' specified in the Annex.

The values in these summary tables are sometimes slightly different from those in previous reports, as the Community database has been checked and some minor corrections made. In fact, the Community is currently improving the software used to assess bathing water quality. Besides extending the programme to include the three new Member States (Austria, Finland and Sweden), the major improvement is the inclusion of a control module allowing verification of data at the time of input. This should also save the Member States and the Commission considerable time.

The report is also supplemented by charts showing changes since 1991 in bathing water conformity based on total and faecal coliforms. Due to the fact that the figures have been rounded, the total may not add up to 100%.

The maps show the quality of bathing water in the 1994 bathing season and indicate which bathing areas in each district complied with the microbiological standards. Detailed microbiological, physical and chemical data for each bathing area are given on the reverse of the maps.

The coloured symbols used on the maps mean:

green symbol: the bathing area complies on the basis of the mandatory values for total coliforms and faecal coliforms. These two parameters have been chosen because they are good indicators of the risks to public health;

red symbol: the bathing area does not comply on the basis of the mandatory values for total and faecal coliforms;

orange symbol: bathing area for which the sampling frequency is less than that required by the Directive and it is therefore impossible to assess conformity. A minimum of two samples per month is required during the bathing season for total and faecal coliforms. The sampling frequency may be halved if sampling carried out during preceding years produced results appreciably better than those specified in the Directive, in which case the area is presumed to comply. However, in all cases a sample must be taken two weeks before the start of the bathing season;

black symbol: an area where the competent authorities have temporarily prohibited bathing. This information is published if the Member State notifies the Commission.

These different symbols are combined if there are several bathing areas in the same administrative area. In these cases, the size of the composite symbol is proportional to the number of bathing areas it represents. Conformity is also shown in this proportional way.

The numbers refer to the administrative areas on the reverse of the maps, together with the relevant detailed information.

Finally, it should be pointed out that when this report was planned (September 1994), arrangements were made only for translations into the nine languages of the 12 Member States. There is thus no translation into Swedish or Finnish. The next report will, of course, be published in the 11 languages of the Community.

Introduction

1. General remarks

This 12th report on the quality of bathing water covers the 1994 bathing season. It is the second report published since the adoption of Council Directive 91/692/EEC, standardizing and rationalizing reports on the implementation of certain directives relating to the environment.

Sectoral reports will be published on a three-year basis. The first report covering the period from 1993 to 1995 will be published in June 1997 and will review implementation of the Directives on water quality. It will be followed in 1998 by a sectoral report on air quality and in 1999 by a report on waste.

Nevertheless, the report on the quality of bathing water is different from the others in that it will still be published annually. This is to allow the public to receive the information at the beginning of each bathing season which they have come to expect.

The 1994 bathing season was marked by a slight improvement in the quality of bathing water in the European Community. This improvement in the quality of sea water has been constant for some years now thanks to the efforts of Member States and their implementation of waste water treatment programmes.

Changes in the quality of freshwater bathing areas depend on the bases of comparison used. Significant improvements in the quality of freshwater bathing areas are reported where percentages are being calculated on sufficiently sampled bathing points. On the other hand, the compliance rate decreases when all the identified areas are taken into account, in which case 35% of the areas fail to comply. The Member States should therefore pay particular attention to those points not sampled or insufficiently sampled: some 23% of the sampling points.

At the European Council in Edinburgh, the Commission, with a view to reconciling Community regulations with the principle of subsidiarity, undertook to prepare a report reappraising existing legislation. This commitment was reiterated in the conclusions of the European Council in Brussels. In the case of Directive 76/160/EEC on the quality of bathing water, revision proved to be the most suitable response to the principle of subsidiarity.

As the Directive is one of the older legal instruments — adopted by the Council in 1975 — there has been some controversy in recent years, chiefly because it has not been adapted to scientific and technical developments which have actually made it possible to define precise and reliable pollution indicators to forecast the presence of pathogens when limit values are exceeded. These same indicators have recently been adopted by the ISO (International Organization for Standardization). The regular measurement of these indicators will guarantee a high level of environmental and health protection.

Moreover, bathing is an important aspect of tourism, and the tourist industry needs common criteria throughout the Community to allow holiday-makers to make unbiased choices. In view of the current economic crisis, it is essential to protect the rules of competition.

There are therefore very good reasons for adopting a directive designed principally:

to maintain the protection of the environment and public health provided by Council Directive 76/160/EEC, and to adapt it to technical progress by concentrating on the most significant parameters;

to simplify implementation of the Directive by deleting redundant parameters and making other definitions more explicit without reducing the protection level of public health and the environment;

to ensure that the Member States take action in cases of deteriorating water quality and endeavour to identify new bathing areas while in both instances allowing sufficient time to bring the water up to the Directive's standards.

2. Revision of Directive 76/160/EEC

As mentioned above, the purpose of revising the Directive concerning the quality of bathing water is to adapt the present text to scientific progress and to take account of the experience gained. It will also be simplified. The revised version has been prepared by the Commission's technical units after consulting the Member States and the scientists. The proposal was adopted by the Commission on 16 February 1994. This text is to be considered, by the Council shortly, in cooperation with the European Parliament which is in the process of examining the proposal. The Economic and Social Committee and the Committee of the Regions returned generally favourable opinions on the proposal on 14 and 28 September 1994 respectively, though both raised a number of specific comments.

The revision will clarify certain articles of Directive 76/160/EEC to facilitate the assessment of bathing water compliance and to reinforce the information available to the public. A committee for adaptation to technical progress should be set up for updating the Directive when necessary.

Furthermore, the possibility of prohibiting bathing temporarily should be a more obvious and effective way of protecting the health of bathers. Also, the new concept of 'water of excellent quality' should provide a standard towards which all Member States should aspire. This standard corresponds to column G (guide values) in the Annex to the proposal.

This Annex has also been amended to remove redundant parameters or parameters for which no limit value has been set. It focuses on the most appropriate pollution indicators for the protection of health and the environment.

3. The DG XII measurements and testing programme

By Decision 92/247/EEC, the Council adopted on 29 April 1992 a specific research and technological development programme in the field of measurements and testing. One of the research programmes concerned sea water microbiology and was designed to support regulations and directives by comparing the methods of analysis used by the Member States for implementing Directive 76/160/EEC concerning bathing water quality.

The methods studied concerned faecal coliforms and faecal streptococci. The preliminary stages of the project set out to ensure that these methods were accurate and reproducible. Tests were conducted on artificially contaminated samples.

During the final stage, enumeration methods were tested on naturally contaminated samples from the Baltic Sea, the Irish Sea, the English Channel, the South Atlantic and the Mediterranean.

The report will be published very shortly, its results discussed by the Member States and published in the next report on bathing water.

4. The blue flag campaign

The blue flag campaign, which is run by the Foundation for Environmental Education in Europe (FEEE), has received much publicity for many years now.

Although the Commission provides some financial support, the campaign is a scheme set up by a non-governmental organization based in Copenhagen.

Blue flags are awarded to beaches which satisfy criteria relating to water quality, bathers' safety and beach facilities and which conduct environmental information campaigns. As far as water quality is concerned, the FEEE sets out to emphasize water of excellent quality. This criterion of excellence is assessed in terms of the guide values given in Directive 76/160/EEC for coliforms (total and faecal) and streptococci.

In the 1994 bathing season, on 16 May 1994, the FEEE awarded 1 454 blue flags. The list of beaches and additional information can be obtained at the following address:

FEEE, European Office
Friluftsrådet
Olof Palmes Gade 10
DK-2100 København Ø

Summary

Every year the Member States have submitted data on the microbiological and physicochemical quality of their bathing water as required by Article 13 of Directive 76/160/EEC. Reports must now comply with Directive 91/692/EEC and must be in digital form.

As in previous bathing seasons, it is difficult to discern any general trend since the situations in the various Member States of the Community vary so widely. Nevertheless, there is still a marked difference in quality between sea water and freshwater, as has been observed in the past.

Sea water quality was high or even excellent in many places, whereas critical levels continue to be reported at many inland sites. Usually, these can be attributed to the summer weather which attracted bathers just at the time when the water-renewal rate was insufficient.

In the following tables, the numbers corresponding to the compliance percentages are calculated on the basis of all the identified points. The percentages of bathing areas for which no data were reported, as well as those with inadequate sampling frequency, are shown in column I of the tables. Hence, these considerations interfere in the compliance percentages which could be improved if the basis of comparison solely concerned the points with a sufficient sampling frequency.

1. Sea water quality

Table 1 summarizes the results for each Member State with the exception of Luxembourg which has no coastline.

A total of 11 790 bathing areas have been identified throughout the Community. In the 1994 bathing season, respectively 89.6 and 77.8% of these complied with the mandatory values and guide values set by the Directive for total coliforms and faecal coliforms. The sampling frequency was too low in 4.3% of the areas.

The minimal sampling frequency required by Directive 76/160/EEC was taken into account when calculating the compliance rate for each parameter listed in the Annex.

Reference to the figures for previous bathing seasons given in Table 2 shows that bathing water quality has improved substantially. Moreover, the percentage of points with inadequate sampling frequency decreased slightly during the 1994 bathing season, but remains higher than values of 1991 and 1992.

Figure 1 shows changes in compliance of bathing water as regards the first two microbiological parameters since 1991.

Table 1 — Results for sea water

Total: total number of sampling points;
 C(I) %: percentage of points complying with the mandatory (I) values;
 C(G) %: percentage of points complying with the guide (G) values;
 I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

Sea water — 1994	Total	C(I) (%)	C(G) (%)	I (%)
Belgium	39	92.3	30.8	0.0
Denmark ¹	1 190	95.1	84.3	0.1
Germany	444	80.2	59.0	5.0
Greece	1 282	94.9	91.0	1.8
Spain	1 490	96.1	83.4	0.7
France	1 870	90.3	69.4	0.9
Ireland	108	100.0	89.8	0.0
Italy	4 543	86.4	81.0	8.5
Netherlands ¹	52	63.5	46.2	36.5
Portugal	315	83.2	74.3	8.6
United Kingdom	457	82.3	33.7	0.0

NB: See 'Note to the reader' for comments on the comparability of data.
¹ Member States for which only data on total coliforms are partly available, then only faecal coliforms are considered.

Table 2 — Results for 1991 to 1994

Total: total number of sampling points;
 C(I) %: percentage of points complying with the mandatory (I) values;
 C(G) %: percentage of points complying with the guide (G) values;
 I %: percentage of points not sampled or insufficiently sampled.

The percentages relate to 'total coliforms' and 'faecal coliforms' at all the identified sampling points in all Member States, except Denmark and the Netherlands, for which only 'faecal coliforms' are taken into account.

Sea water	Total	C(I) (%)	C(G) (%)	I (%)
1991	10 253	87.8	63.3	2.6
1992	10 972	88.9	76.7	2.2
1993	11 361	88.6	77.1	4.8
1994	11 790	89.6	77.8	4.3

2. Freshwater quality

Table 3 summarizes the results for each Member State with the exception of the United Kingdom, which has not identified any inland bathing areas.

A total of 5 382 freshwater bathing areas have been identified throughout the Community. In the 1994 bathing season, respectively 64.4 and 37.9% of these complied with the mandatory values and guide values set by the Directive for total coliforms and faecal coliforms. If only the areas sampled at the required frequency are considered, this compliance rate rises to 84.0 and 49.5% respectively, compared with 82.8 and 48.2% in 1993.

Table 3 — Results for freshwater bathing areas

Total: total number of sampling points;
 C(I) %: percentage of points complying with the mandatory (I) values;
 C(G) %: percentage of points complying with the guide (G) values;
 I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

Freshwater — 1994	Total	C(I) (%)	C(G) (%)	I (%)
Belgium	86	55.8	29.1	4.7
Denmark	110	95.5	84.5	1.8
Germany	1 915	47.2	33.8	41.8
Greece	4	100.0	25.0	0.0
Spain	346	63.6	25.7	11.0
France	1 666	79.2	35.8	9.2
Ireland	9	100.0	88.9	0.0
Italy	679	86.9	64.1	1.8
Luxembourg	20	85.0	55.0	0.0
Netherlands ¹	523	44.6	24.3	46.3
Portugal	24	70.8	29.2	20.8

NB: See 'Note to the reader' for comments on the comparability of data.

¹ Member State for which only data on faecal coliforms are taken into account, since data on total coliforms are incomplete.

Table 4 contains general results for the last four bathing seasons. However, it is difficult to establish a trend because of the sharp increase in the number of points insufficiently sampled.

This sharp increase is because the Commission paid special attention to the ways in which the Member States were applying the option of reducing sampling frequency and in many cases irregularities were detected.

The number of bathing areas insufficiently sampled is higher for inland water than for sea water, which seems contradictory since freshwater is usually of poorer quality.

The Member States concerned should make much more effort to improve sampling frequency and their compliance rate.

Figure 2 shows changes in compliance of bathing water as regards the first two microbiological parameters since 1991.

Table 4 — Results for 1991 to 1994

Total: total number of sampling points;
 C(I) %: percentage of points complying with the mandatory (I) values;
 C(G) %: percentage of points complying with the guide (G) values;
 I %: percentage of points not sampled or insufficiently sampled.

Percentages relate to 'total coliforms' and 'faecal coliforms' at all the identified sampling points in all Member States, except the Netherlands, for which only 'faecal coliforms' are taken into account.

Freshwater	Total	C(I) (%)	C(G) (%)	I (%)
1991	4 799	69.0	34.6	15.2
1992	5 728	66.4	33.6	12.2
1993	5 089	65.0	37.8	21.5
1994	5 382	64.4	37.9	23.4

Figure 1 — Summary of results for sea water

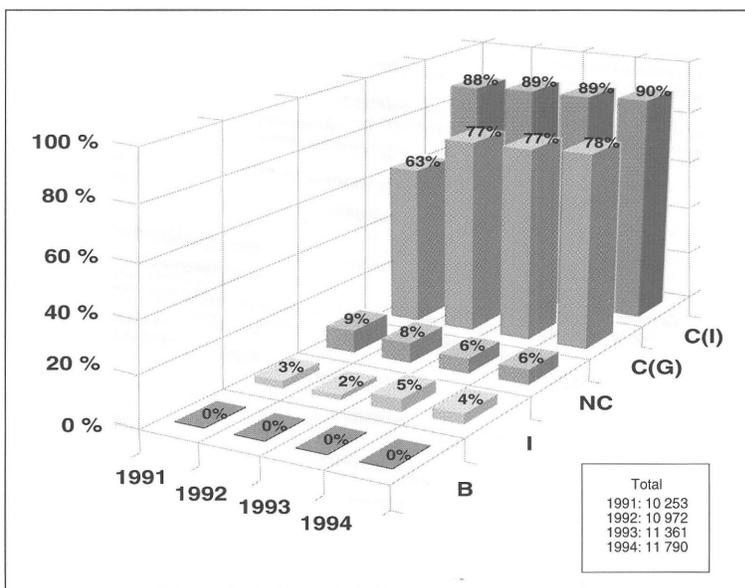
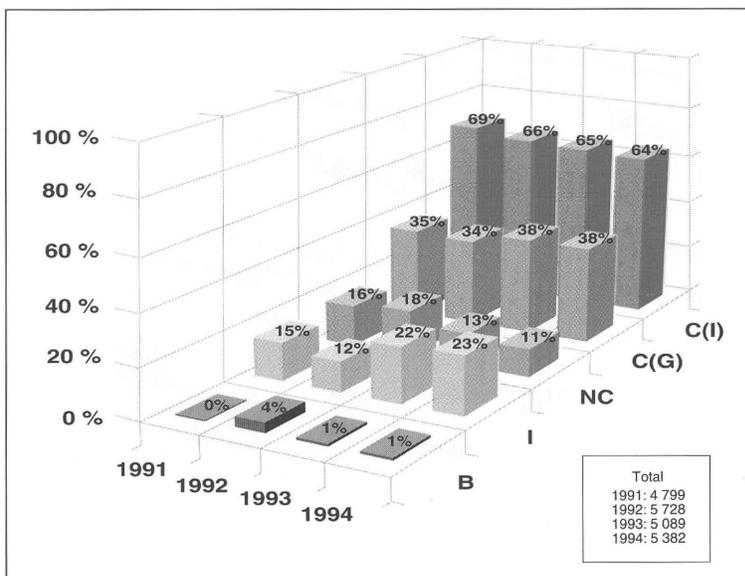
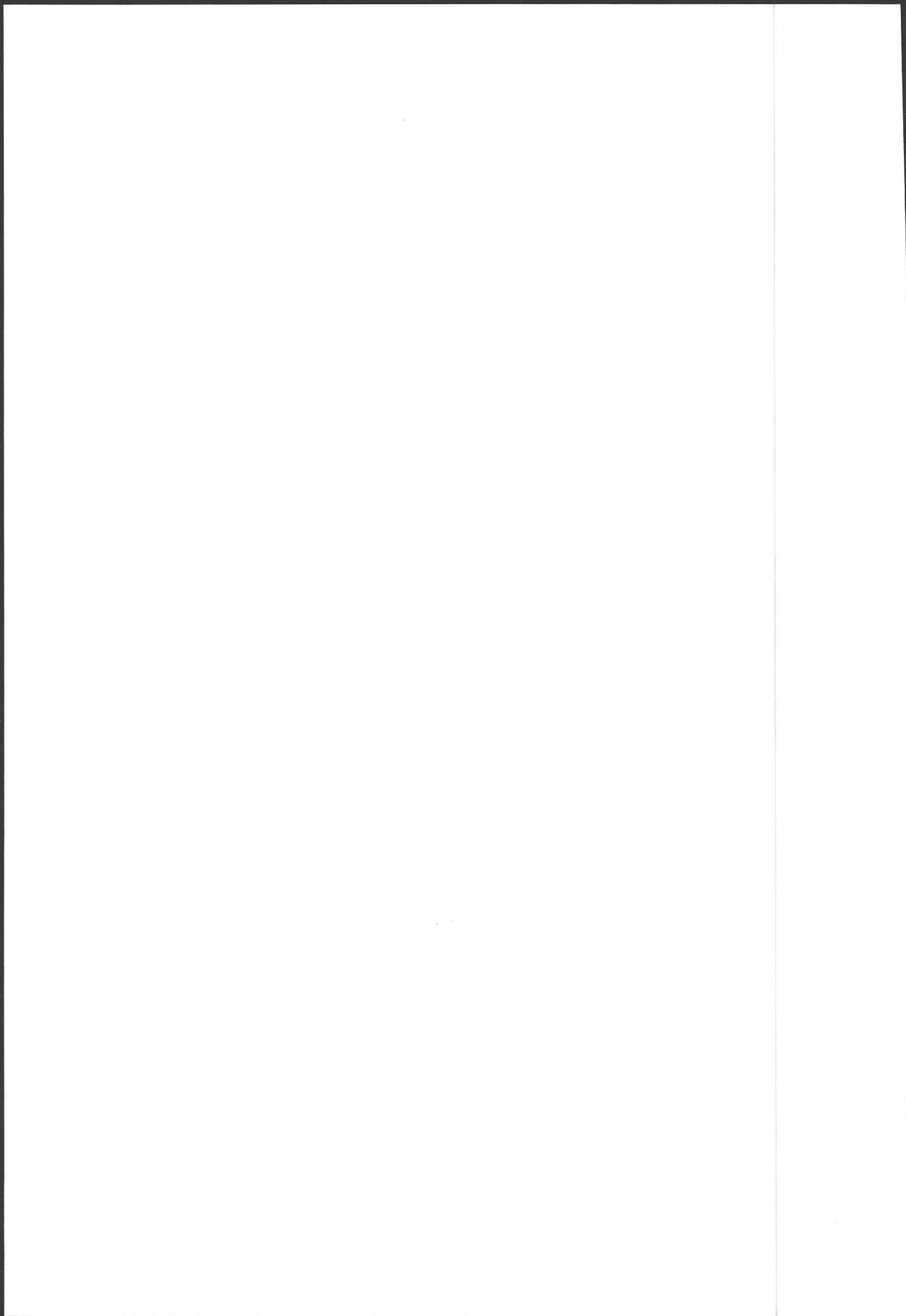


Figure 2 — Summary of results for freshwater



Total: total number of sampling points;
 C(I): percentage of points complying with the mandatory (I) values;
 C(G): percentage of points complying with the guide (G) values;
 NC: percentage of points not complying with the mandatory (I) values;
 I: percentage of points not sampled or insufficiently sampled;
 B: percentage of points where bathing is prohibited.

The percentages relate to 'total coliforms' and 'faecal coliforms' at all the identified sampling points in all Member States, except Denmark (sea water) and the Netherlands (sea water and freshwater), for which only 'faecal coliforms' are taken into account.



Directive 76/160/EEC — Annex

(OJ L 31, 5.2.1976)

The values specified in column I (mandatory) have been set as the minimum bathing water quality in the Member States.

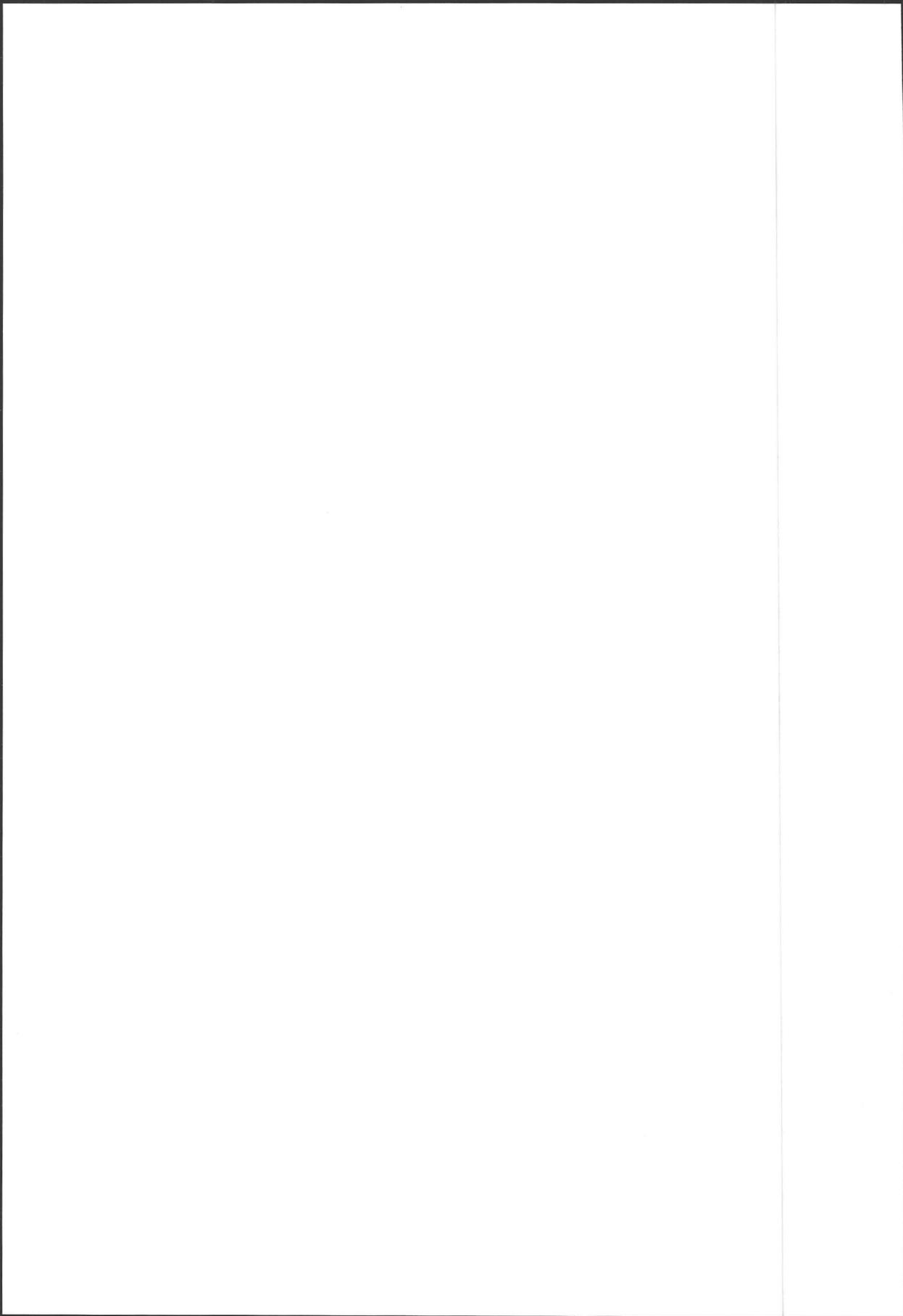
Quality requirements for bathing water

Parameters	Guide	Mandatory	Minimum sampling frequency	Method of analysis and inspection
Microbiological				
1. Total coliforms/100 ml	500	10 000	Fortnightly (a)	Fermentation in multiple tubes. Subculturing of the positive tubes on a confirmation medium.
2. Faecal coliforms/100 ml	100	2 000	Fortnightly (a)	Count according to MPN (most probable number) or membrane filtration and culture on an appropriate medium such as Tergitol lactose agar, endo-agar, 0.4% Teepol broth, subculturing and identification of the suspect colonies. In the case of 1 and 2, the incubation temperature is variable according to whether total or faecal coliforms are being investigated.
3. Faecal streptococci/100 ml	100	—	(b)	Litsky method. Count according to MPN (most probable number) or filtration on membrane. Culture on an appropriate medium.
4. Salmonella/litre	—	0	(b)	Concentration by membrane filtration. Inoculation on a standard medium. Enrichment—subculturing on isolating agar—identification.
5. Enteroviruses PFU/10 litres	—	0	(b)	Concentrating by filtration flocculation or centrifugation and confirmation.

Parameters	Guide	Mandatory	Minimum sampling frequency	Method of analysis and inspection
Physicochemical				
6. pH	—	6-9 (c)	(b)	Electrometry with calibration at pH 7 and 9.
7. Colour	—	No abnormal change in colour (c) —	Fortnightly (a) (b)	Visual inspection or photometry with standards on the Pt.Co scale.
8. Mineral oilsmg/litre	— ≤ 0.3	No film visible on the surface of the water and no odour (b)	Fortnightly (a)	Visual and olfactory inspection or extraction using an adequate volume and weighing the dry residue.
9. Surface-active substances reacting with methylene blue (Lauryl sulphate) mg/litre	— ≤ 0.3	No lasting foam —	Fortnightly (a) (b)	Visual inspection or absorption spectrophotometry with methylene blue.
10. Phenols mg/litre (phenol indices) C ₆ H ₅ OH	— ≤ 0.005	No specific odour ≤ 0.05	Fortnightly (a) (b)	Verification of the absence of specific odour due to phenol or absorption spectrophotometry 4-aminoantipyrine (4 A.A.P.) method.
11. Transparency m	2	1 (c)	Fortnightly (a)	Secchi's disc.
12. Dissolved oxygen % saturation O ₂	80 to 120	—	(b)	Winkler's method or electrometric method (oxygen meter).

Parameters	Guide	Mandatory	Minimum sampling frequency	Method of analysis and inspection
13. Tarry residues and floating materials such as wood, plastic articles, bottles, containers of glass, plastic, rubber or any other substance. Waste or splinters.	Absence		Fortnightly (a)	Visual inspection.
14. Ammonia mg/litre NH ₄			(d)	Absorption spectrophotometry, Nessler's method, or indophenol blue method.
15. Nitrogen Kjeldahl mg/litre N			(d)	Kjeldahl method.
Other substances regarded as indications of pollution:				
16. Pesticides (parathion, HCH, dieldrin) mg/litre			(b)	Extraction with appropriate solvents and chromatographic determination.
17. Heavy metals such as: arsenic mg/litre As cadmium Cd chrome VI Cr VI lead Pb mercury Hg			(b)	Atomic absorption possibly preceded by extraction.
18. Cyanides mg/litre Cn			(b)	Absorption spectrophotometry using a specific reagent.
19. Nitrates mg/litre NO ₃ and phosphates PO ₄			(b)	Absorption spectrophotometry using a specific reagent.

- (a) When a sampling taken in previous years produced results which are appreciably better than those in this Annex and when no new factor likely to lower the quality of the water has appeared, the competent authorities may reduce the sampling frequency by a factor of 2.
- (b) Concentration to be checked by the competent authorities when an inspection in the bathing area shows that the substance may be present, or that the quality of the water has deteriorated.
- (c) Provision exists for exceeding the limits in the event of exceptional geographical or meteorological conditions.
- (d) These parameters must be checked by the competent authorities when there is a tendency towards eutrophication of the water.



Belgium

B

Belgium provided a report prepared jointly by the Institute for Hygiene and Epidemiology, the Ministry of the Walloon Region and the Flemish Environmental Agency.

The bathing season on the coast runs from 1 April to 30 September. However, for inland waters, the length of the season depends on the location, starting on 15 May or 1 July and ending on 31 August or 30 September.

Therefore a minimum of 13 samples must be taken at the coast, although this may be reduced to seven in bathing areas where the water quality has complied with the mandatory values in the previous two years. The minimum number of samples required for inland waters depends on the length of the bathing season.

1. Results

The results were assessed on the basis of the mandatory values laid down in the Directive, which, in any case, are the same as the limit values laid down in Belgian legislation. The Directive sets only a guide value for faecal streptococci, dissolved oxygen and floating materials. The results for these parameters were therefore assessed on the basis of these guide values.

A — *Sea water bathing areas*

As in previous years, a total of 39 coastal bathing water areas were closely monitored. An average of 35 samples was recorded during the bathing season, which means that one or more samples were taken every week.

During the bathing season 1994, 36 (92%) of the areas sampled complied with the mandatory values laid down for total and faecal coliforms. This represents an increase in the rate of compliance of approximately 10% as compared with 1993, a rate similar to that of 1992.

Table 1 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Belgium — Sea water	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	39	3	39	0	39	1	39	0
Faecal coliforms	39	6	39	4	39	7	39	3
Faecal streptococci ¹	39	15	39	20	39	24	39	23
Salmonella	16	15	35	25	32	29	28	26
Enteroviruses	0	—	0	—	0	—	0	—
Physicochemical								
pH	0	—	0	—	0	—	0	—
Colour	39	0	39	0	39	0	39	0
Mineral oils	39	0	39	0	39	0	39	0
Surface-active substances	39	0	39	0	39	0	39	0
Phenols	39	0	39	0	39	0	39	0
Transparency	0	—	0	—	0	—	0	—
Dissolved oxygen ¹	39	0	39	0	39	0	39	0
Floating materials ¹	39	0	39	0	39	0	39	0
¹ Guide value only.								

Reference to the figures for 1991, 1992 and 1993 shows that a certain number of sampling points have failed to comply with the limit values for four consecutive years, indicating a recurrent pollution problem in these areas.

The completion of a main drainage and sewage system during the 1994 bathing season has helped to improve the quality of the bathing water, particularly close to ports.

In 1994, 12 (31%) of the sampling points complied with the guide values for total and faecal coliforms.

Salmonella tests were carried out in 72% of the bathing areas, although the Belgian authorities saw no need to monitor for enteroviruses. Salmonella was detected in 93% of cases.

Faecal streptococci were monitored systematically. The Annex to the Directive sets only a guide value for this parameter. Only 41% of bathing areas complied with this standard.

As regards the physicochemical parameters, the results complied with the requirements of the Directive. Because of the geographical conditions, the competent authorities took no account of transparency for assessing bathing water quality at the coast. However, ammonia concentration as well as the nitrate and phosphate content were analysed.

B — Freshwater bathing areas

The results were notified for 86 bathing areas. This number compares with that of the previous season.

Table 2 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Belgium — Freshwater	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	67	14	82	31	78	26	78	28
Faecal coliforms	67	12	82	30	78	27	79	29
Faecal streptococci ¹	67	31	82	66	83	50	82	53
Salmonella	55	6	82	13	63	13	67	22
Enteroviruses	0	—	0	—	0	—	0	—
Physicochemical								
pH	67	21	82	32	83	28	76	31
Colour	42	2	40	4	38	0	70	3
Mineral oils	63	1	78	7	72	7	75	3
Surface-active substances	63	5	78	22	71	14	76	14
Phenols	63	0	78	0	72	4	76	0
Transparency	53	44	40	29	38	35	46	43
Dissolved oxygen ¹	67	42	81	57	83	51	53	43
Floating materials ¹	63	16	77	12	72	1	76	2
¹ Guide value only.								

Of the 78 areas sampled at the required frequency, 48 (62%) complied with the mandatory values for total and faecal coliforms.

Reference to the figures for 1991 shows that some sampling points failed to comply with the limit values for four consecutive years, indicating a recurrent pollution problem in these areas. With the exception of two sampling points, Lake Neufchâteau and the Étang de Recht, all the points with recurrent pollution problems since 1992 are in rivers. The Belgian authorities attribute the pollution to domestic waste, especially in the tourist season. In addition, low water levels during the season made matters worse and bathing was prohibited in four places.

New drainage schemes should gradually improve the situation.

For the 1994 season, 25 sampling points (29%) complied with the guide values for total and faecal coliforms. No salmonella was detected at 20 of these sampling points.

Although salmonella tests were widely carried out, the Belgian authorities did not consider it necessary to monitor for enteroviruses.

The Belgian authorities monitored for faecal streptococci systematically. The Annex to the Directive sets only a guide value for this parameter. Only 35% of bathing areas complied with this standard.

As regards the physicochemical parameters, the pH and transparency standards were regularly exceeded, which could be explained by the eutrophication of the areas concerned, as was confirmed by measurements to determine dissolved oxygen concentrations.

Very small quantities of foam are frequently observed on rivers in tourist areas of Wallonia. However, this does not always indicate detergent pollution since decomposing organic matter can also cause foaming. In any case, the Belgian authorities attribute the pollution generally to domestic waste from various scattered sources, which makes the problem difficult to solve.

2. General information

Public information

In coastal areas the local authorities published the results of the analyses every week. The data are also available on videotext.

In inland areas, information on bathing water quality was published twice a month by the burgomasters of the communes concerned.

Improvement schemes

In 1995, BFR 3.5 billion is to be invested in improvement schemes in urban areas in Wallonia, some of which are beside rivers used by tourists. It is to be hoped that in the medium to long term their water quality will improve.

Along the coast, the initial stages of improvement plans have been completed. The benefits were already perceptible in the 1994 bathing season.

3. Information summary

Map 1 shows the results of the 1994 bathing season for Belgium.

It indicates for each commune the compliance of the bathing areas with the mandatory (I) values for total and faecal coliforms.

The method of analysis used for these two parameters was membrane filtration with subculture on an appropriate medium. The analysis was generally followed by a confirmation test.

Figures 1 and 2 show changes in compliance of bathing water as regards the first two microbiological parameters since 1991.

4. Conclusion

At the coast, the number of areas complying increased during the 1994 bathing season.

For inland water, on the other hand, there was a sharp decrease in compliance as compared with 1991. This sharp decrease was entailed by the introduction of bathing areas in rivers whose water quality is generally poorer than for other water-planes. According to the Belgian authorities, efforts to clean up the effluent from neighbouring towns should eventually help to solve the river pollution problem.

The Member State is requested to take all appropriate measures in order to improve this serious situation.

Table 3 — Summary

(Compliance of bathing areas with the standards for microbiological parameters — total and faecal coliforms — 1994 bathing season.)

Belgium — 1994	Sea water	Freshwater
Number of sampling points	39	86
Number of points not sampled	0	0
Number of points insufficiently sampled	0	4
Number of points complying with mandatory (I) values	36	48
Number of points complying with guide (G) values	12	25
Number of points where bathing was prohibited	0	4
Average sampling frequency	35.1	8.5

Table 4 — Results for 1991 to 1994

Total: total number of sampling points;

C(I) %: percentage of points complying with the mandatory (I) values;

C(G) %: percentage of points complying with the guide (G) values;

I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

Belgium	Total	C(I) (%)	C(G) (%)	I (%)
Sea water				
1991	39	84.6	17.9	0.0
1992	39	89.7	17.9	0.0
1993	39	82.1	23.1	0.0
1994	39	92.3	30.8	0.0
Freshwater				
1991	67	74.6	41.8	0.0
1992	85	57.6	28.2	0.0
1993	85	58.8	30.6	5.9
1994	86	55.8	29.1	4.7

Figure 1 — Belgium — Results for sea water

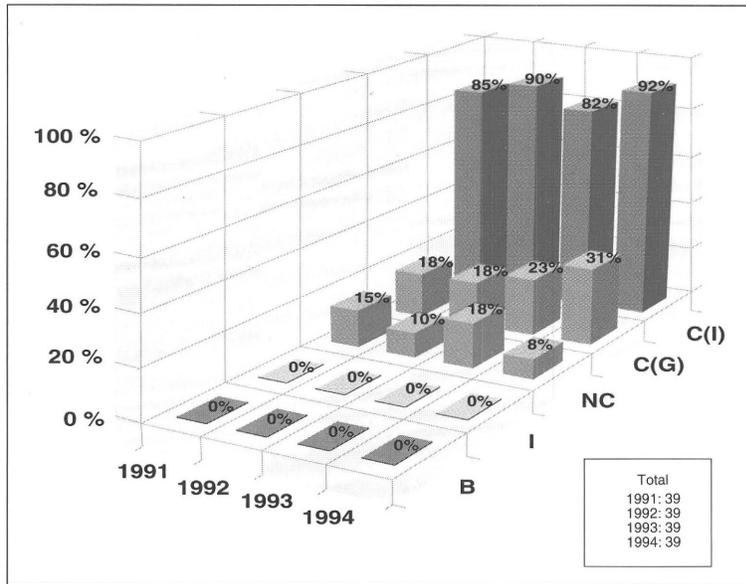
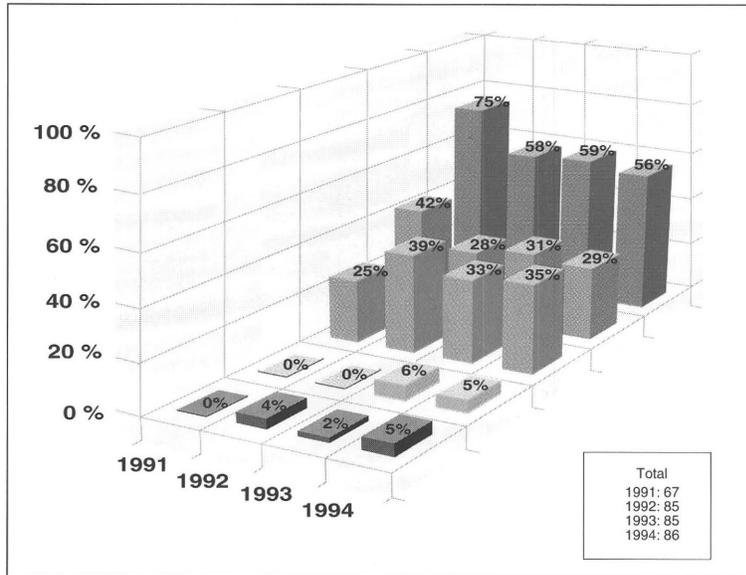
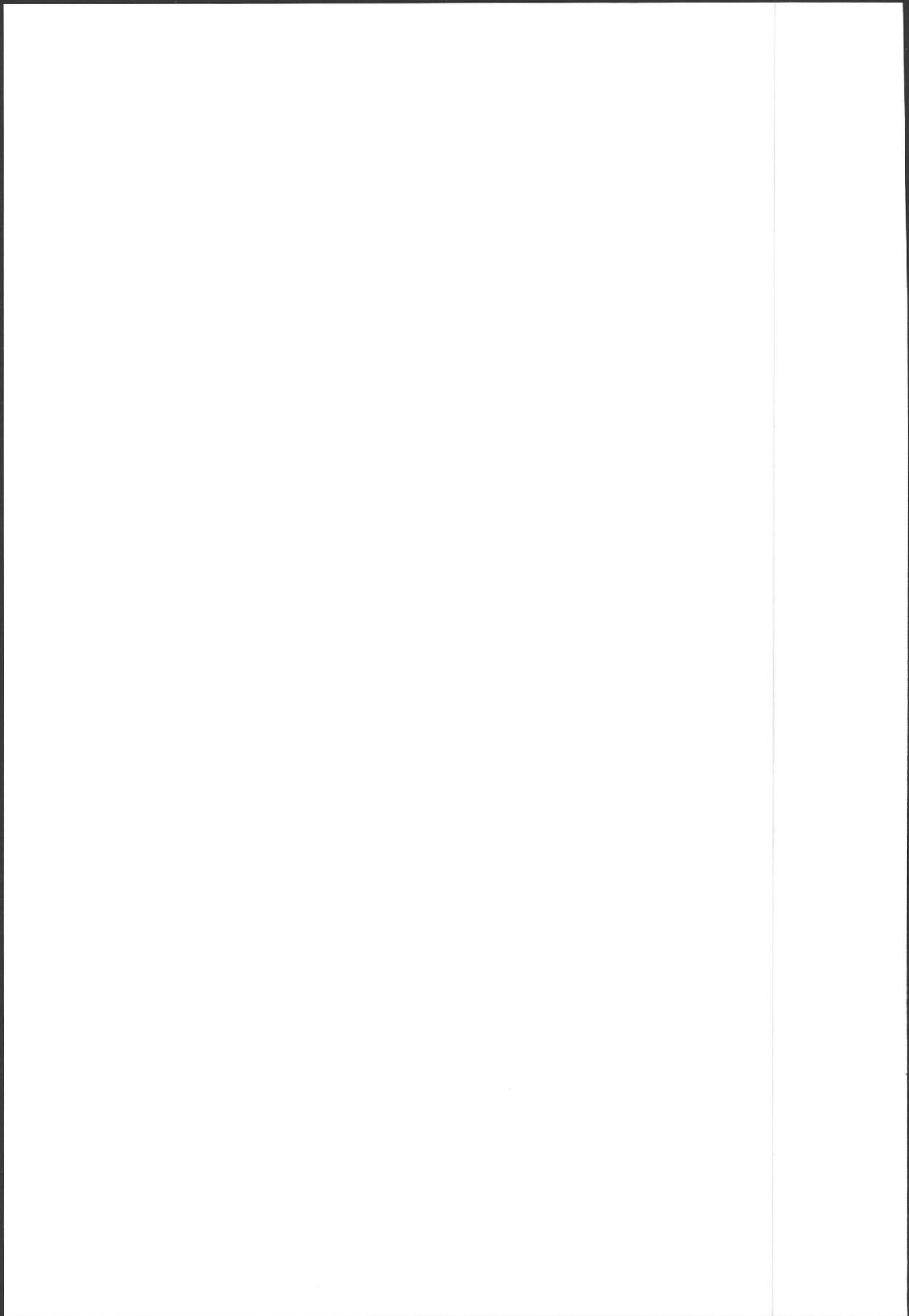


Figure 2 — Belgium — Results for freshwater



Total: total number of sampling points;
 C(I): percentage of points complying with the mandatory (I) values;
 C(G): percentage of points complying with the guide (G) values;
 NC: percentage of points not complying with the mandatory (I) values;
 I: percentage of points not sampled or insufficiently sampled;
 B: percentage of points where bathing is prohibited.

The percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.



Denmark

DK

Denmark provided a report prepared by the Danish Environmental Protection Agency.

Under the current legislation, the bathing season runs from 1 June to 1 October. Sampling generally begins one month before the start of the bathing season.

In accordance with the Directive, a minimum of nine samples must therefore be taken, although this may be reduced to five in bathing areas where the water has complied with the mandatory values for the previous two years.

In practice, 10 samples are taken during the bathing season. The sampling frequency can be doubled if there are problems or if the limit values are exceeded. Where the water is known to be of very high quality, the number of samples can be reduced to five.

1. Results

The results were assessed on the basis of the mandatory values laid down in the Directive. However, Danish legislation has laid down stricter values for:

faecal coliforms: 1 000/100 ml;

chemicals: absence.

Thus, it is probable that a different assessment would have been made of water quality in certain bathing areas if the mandatory value for faecal coliforms set in the Directive (which is less stringent than the national standard) had been taken as the reference value.

Moreover, the Danish authorities use a statistical tool not provided for in the Directive to estimate bathing water quality. This too could produce diverging assessments. Bathing waters which fail to meet the criteria are classified as doubtful. In some cases bathing may be prohibited.

A — Sea water bathing areas

DK

The number of coastal bathing areas increased by 11 compared with 1993.

The local authorities decide on the location of sampling points after consulting the regional council and the health council. Several sampling points are used in order to identify and delimit areas of pollution, e.g. ports, sewage outlets and river mouths.

As regards microbiological parameters, the Danish authorities do not systematically measure total coliforms in sea waters.

However, the total coliform parameter was measured in 27% of bathing areas in order to comply with the criteria laid down by the Foundation for Environmental Education in Europe (FEEE) for awarding a blue flag.

Table 1 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Denmark — Sea water	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	0	—	6	0	315	10	316	4
Faecal coliforms	1 160	46	1 146	33	1 159	25	1 172	40
Faecal streptococci ¹	0	—	273	38	333	53	327	42
Salmonella	0	—	0	—	0	—	0	—
Enteroviruses	0	—	0	—	0	—	0	—
Physicochemical								
pH	0	—	0	—	0	—	0	—
Colour	0	—	1 146	0	1 110	5	1 154	21
Mineral oils	192	0	1 146	0	1 140	0	1 166	0
Surface-active substances	192	0	1 146	0	1 140	1	1 166	1
Phenols	192	0	1 146	0	1 140	0	1 166	0
Transparency	0	—	0	—	0	—	0	—
Dissolved oxygen ¹	0	—	0	—	0	—	0	—
Floating materials ¹	0	—	0	—	1 110	3	1 141	0
¹ Guide value only.								

During the 1994 bathing season, 95% of the sampling points complied with the mandatory value for faecal coliforms. These results correspond to those of previous years and confirm the very high quality of bathing water.

Where water fails to meet the standards for three consecutive years, the local authorities prohibit bathing, unless the causes of pollution are identified and eliminated before the next bathing season. In this case, regular monitoring is carried out. Bathing can also be prohibited in areas with unacceptable health risks. During 1994, bathing was prohibited in 17 areas, i.e. 1.4% of coastal bathing areas.

On the basis of the Danish standards which include statistical evaluation, 54 bathing areas failed to meet the quality criteria. This is a slight improvement over the 1993 bathing season, during which 55 sampling points failed to meet the quality criteria. Nevertheless, the sampling points where quality was unacceptable are largely different from those of last year. Indeed, in many areas sewage-treatment plants and storm drainage have improved water quality. Moreover, the percentage of untreated effluent has been substantially reduced.

The main reason why quality in few new areas was doubtful is the excessive concentration of coliforms resulting from periods of heavy rain which exceeded the capacity of waste water treatment plants.

Moreover, for the 1994 season, 84% of the sampling points also complied with the guide value for faecal coliforms. Denmark saw no need to monitor for salmonella or enteroviruses.

As already reported, faecal streptococci analyses were carried out in 27% of bathing areas for the purposes of the blue flag campaign. In all, 87% of bathing areas complied with this standard, for which the Directive sets only a guide value.

The limit values for physicochemical parameters were exceeded in a very limited number of cases.

B — Freshwater bathing areas

There was little change in the number of inland bathing areas compared with previous years (110 in 1994 compared with 108 in 1993 and 109 in 1992).

DK

Table 2 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Denmark — Freshwater	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	103	0	105	2	105	0	106	0
Faecal coliforms	108	4	106	5	105	2	108	1
Faecal streptococci ¹	0	—	9	1	12	0	21	0
Salmonella	0	—	0	—	0	—	0	—
Enteroviruses	0	—	0	—	0	—	0	—
Physicochemical								
pH	0	—	0	—	0	—	0	—
Colour	0	—	105	0	87	0	96	2
Mineral oils	44	0	106	0	103	0	108	0
Surface-active substances	44	0	106	0	103	0	108	0
Phenols	44	0	105	0	102	0	107	0
Transparency	0	—	0	—	0	—	0	—
Dissolved oxygen ¹	0	—	0	—	0	—	0	—
Floating materials ¹	0	—	0	—	86	—	89	0
¹ Guide value only.								

During the 1994 bathing season, 95.5% of the sampling points complied with the mandatory values for total and faecal coliforms. This confirms the improvement already noted in 1993.

Bathing was prohibited at one bathing area (including two monitoring stations) because of recurrent pollution.

Moreover, for the 1994 bathing season, 84.5% of the sampling points also complied with the guide values set for these two parameters in the Directive. Denmark saw no need to monitor for salmonella or enteroviruses.

No results were reported which exceeded the limit values for the physicochemical parameters, except for colour.

2. General information

Public information

Each year, the Danish authorities publish a report containing the results for the previous bathing season together with a detailed map.

DK

Improvement schemes

In areas where bathing is prohibited, the local authorities endeavour to identify the causes of pollution. Improvements are made or measures are taken to reduce effluent from overflow installations.

At local level, efforts are made to detect and eliminate diffuse pollution sources such as illegal discharges from private properties or leakage from the sewage system.

In 1987, the Danish Parliament adopted the aquatic environment action programme. Although not specifically targeted at bathing areas, it will result indirectly in an improvement in bathing water quality. A substantial proportion of the measures to be taken to reduce pollution will be aimed at improving discharge systems and sewage-treatment plants. This will reduce discharges of untreated effluent, which will have the effect of improving the quality of bathing water.

3. Information summary

Map 2 shows the results for the 1994 bathing season in Denmark.

It indicates for each commune compliance of the bathing areas with the mandatory (I) values laid down in the Directive for faecal coliforms in the case of coastal waters and for total and faecal coliforms in the case of freshwater bathing areas.

The method of analysis used for these parameters was membrane filtration with subculture on an appropriate medium (ISO/DIS 9308/1).

Figures 1 and 2 show changes in compliance of bathing water since 1991. This compliance is evaluated as regards, respectively, in sea water bathing areas, faecal coliforms only and in freshwater both faecal and total coliforms.

Table 3 — Summary

(Compliance of bathing areas with the standards for microbiological parameters — total and faecal coliforms for freshwater and faecal coliforms only for sea water — 1994 bathing season.)

Denmark — 1994	Sea water	Freshwater
Number of sampling points	1 190	110
Number of points not sampled	0	0
Number of points insufficiently sampled	1	2
Number of points complying with mandatory (I) values	1 132	105
Number of points complying with guide (G) values	1 003	93
Number of points where bathing was prohibited	17	2
Average sampling frequency	12.0	10.3

Table 4 — Results for 1991 to 1994

Total: total number of sampling points;

C(I) %: percentage of points complying with the mandatory (I) values;

C(G) %: percentage of points complying with the guide (G) values;

I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' for freshwater and 'faecal coliforms' only for sea water.

Denmark	Total	C(I) (%)	C(G) (%)	I (%)
Sea water				
1991	1 191	93.5	0.0	0.2
1992	1 173	94.9	86.4	0.0
1993	1 179	96.2	87.3	0.0
1994	1 190	95.1	84.3	0.1
Freshwater				
1991	116	86.2	0.9	4.3
1992	109	91.7	75.2	0.9
1993	108	95.4	79.6	0.0
1994	110	95.5	84.5	1.8

4. Conclusion

Although the results recorded during the 1994 bathing season are not quite as good as in 1993 (sea water), they confirm the very high quality of Danish bathing water. Water quality has tended to improve since 1991. According to the Member State, this was due largely to a reduction in discharges of untreated effluent into the aquatic environment.

Figure 1 — Denmark — Results for sea water

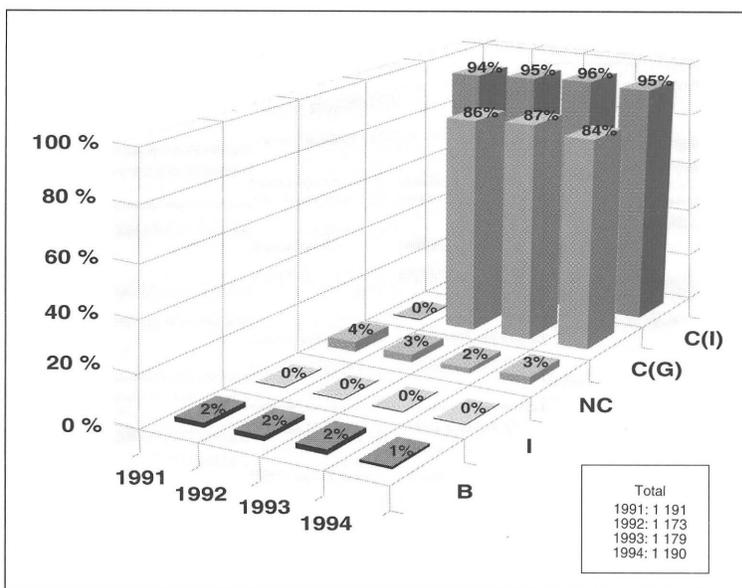
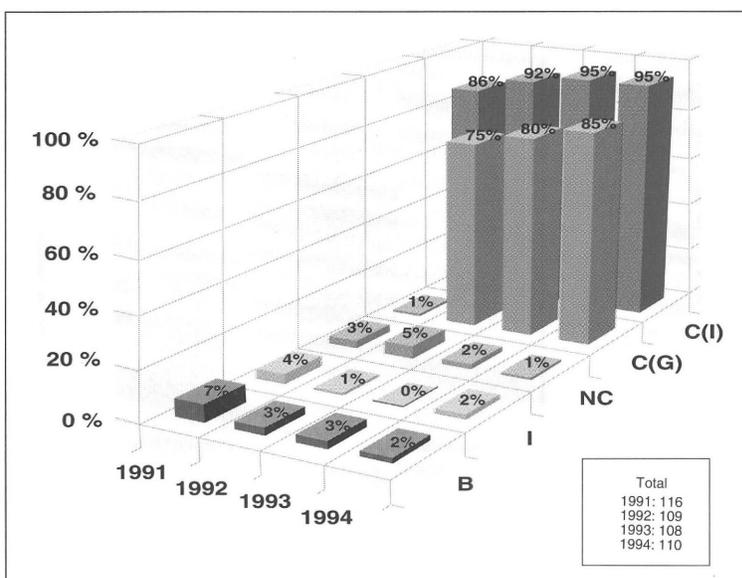
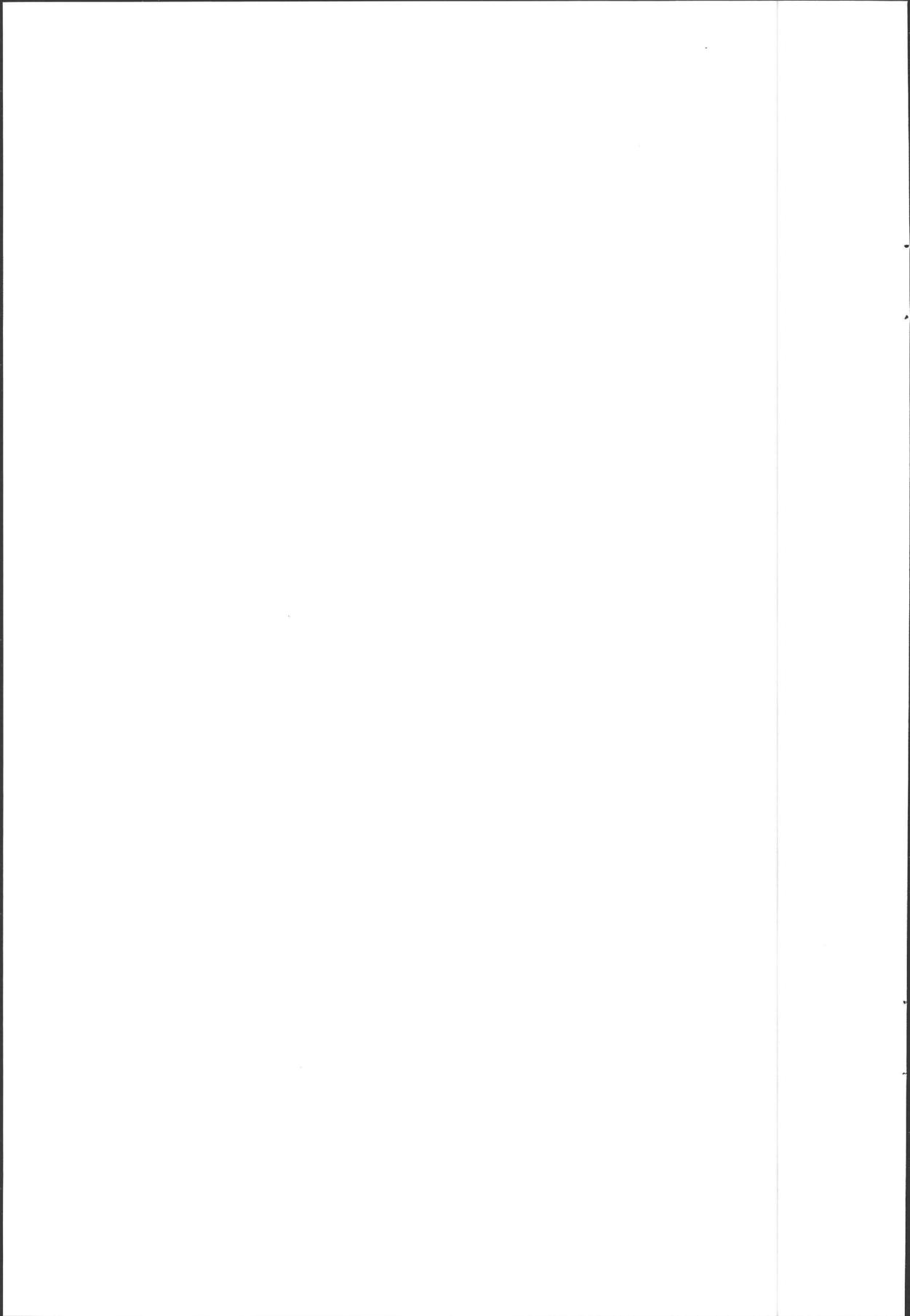


Figure 2 — Denmark — Results for freshwater



Total: total number of sampling points;
 C(I): percentage of points complying with the mandatory (I) values;
 C(G): percentage of points complying with the guide (G) values;
 NC: percentage of points not complying with the mandatory (I) values;
 I: percentage of points not sampled or insufficiently sampled;
 B: percentage of points where bathing is prohibited.

The percentages are given for 'total coliforms' and 'faecal coliforms' for freshwater and 'faecal coliforms' only for sea water.



Germany

D

Germany provided a report prepared by the competent national authorities.

The bathing season varies from one *Land* to another (between two and six months). Sometimes it varies between different parts of the same *Land*.

In coastal areas, the bathing season is generally four months.

A minimum of nine samples must therefore be taken in these areas, although this may be reduced to five where the water met the mandatory standards during the previous two years.

1. Results

The results were assessed on the basis of the mandatory values laid down in the Directive, except for faecal streptococci, dissolved oxygen and floating materials, for which the guide values were used (the Directive lays down no mandatory values for these parameters).

A — *Sea water bathing areas*

Results were reported for 444 bathing areas. This is a slightly higher number than in 1993.

In all, 356 (84%) of the 422 points sampled at the minimum frequency required by the Directive complied with the mandatory values set for total and faecal coliforms. This was equivalent to 80% of all the 444 identified bathing areas.

The abovementioned results concern only the three *Länder* with coastal bathing areas: Mecklenburg-Western Pomerania, Schleswig-Holstein and Lower Saxony.

Bathing was prohibited temporarily at two areas, which is fewer than in previous years.

Table 1 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Germany — Sea water	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	519	159	419	63	399	44	422	52
Faecal coliforms	519	30	419	55	402	43	421	35
Faecal streptococci ¹	3	0	31	3	11	3	9	1
Salmonella	52	1	2	0	2	0	1	0
Enteroviruses	2	0	2	2	0	—	0	—
Physicochemical								
pH	379	61	296	12	353	18	356	10
Colour	438	116	414	55	393	30	354	41
Mineral oils	511	2	418	3	394	1	411	0
Surface-active substances	511	56	418	14	393	3	411	1
Phenols	507	49	265	1	394	2	408	1
Transparency	494	306	202	99	367	156	370	208
Dissolved oxygen ¹	2	2	0	—	0	—	4	0
Floating materials ¹	224	2	264	0	393	81	404	92
¹ Guide value only.								

For the 1994 bathing season, the guide values for total and faecal coliforms were complied with at 262 (59%) of the sampling points. There was no monitoring for enteroviruses, and salmonella monitoring was insignificant when it concerned only one bathing area. Analyses for faecal streptococci were carried out in 2% of bathing areas.

As regards the physicochemical parameters, the limit values for pH, surface-active substances and phenols were seldom exceeded. According to German authorities problems of colour and transparency generally resulted from the geographical conditions of the marine environment.

B — Freshwater bathing areas

In 1994, 1 915 bathing areas were monitored. This is 213 (about 12.5%) more than in 1993.

Table 2 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Germany — Freshwater	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	887	299	1 137	340	989	163	1 117	145
Faecal coliforms	882	150	1 179	174	1 018	92	1 128	83
Faecal streptococci ¹	19	0	210	14	162	46	202	28
Salmonella	523	18	591	40	491	22	538	17
Enteroviruses	135	0	110	70	50	1	49	1
Physicochemical								
pH	1 226	88	1 378	196	1 398	178	1 551	237
Colour	671	35	1 041	96	903	75	980	117
Mineral oils	682	6	1 066	2	939	0	1 073	4
Surface-active substances	683	29	1 063	27	917	56	1 047	39
Phenols	668	10	846	0	923	0	1 035	0
Transparency	739	393	844	414	814	320	932	401
Dissolved oxygen ¹	41	34	401	310	436	293	439	314
Floating materials ¹	193	2	748	8	677	5	781	3
¹ Guide value only.								

In all, 903 (81%) of the 1 114 areas sampled at the minimum frequency required by the Directive complied with the mandatory values set for total and faecal coliforms. This was equivalent to 47% of all the 1 915 identified bathing areas.

The percentage of points insufficiently sampled rose to 42%. Although comparable to last year's percentage, this is still very high.

Bathing was prohibited at 31 bathing areas following the growth of blue-green algae.

For the 1994 bathing season, the guide values for total and faecal coliforms were complied with in 34% of bathing areas. Salmonella was monitored in 28% of bathing areas whereas enteroviruses were monitored in only 3% of bathing areas.

Analyses for faecal streptococci were carried out in about 11% of bathing areas.

As regards the physicochemical parameters, the limit values most often exceeded were pH and transparency, often as a result of the development of algae.

2. General information

D

Public information

The German authorities publish information on the most recent results close to the bathing areas.

Improvement schemes

The competent *Länder* authorities take appropriate measures to improve or restore the quality of bathing water when the limit values laid down in the Annex to the Directive are significantly or repeatedly exceeded.

In addition to general improvement schemes targeted at upgrading water quality, research is being carried out to investigate the precise causes of pollution in order to take appropriate specific measures.

In recent years, equipment capable of treating phosphorus nutrients has been added to the large sewage-treatment plants on the coast and on the islands off Schleswig-Holstein. Moreover, the special programme concerning a more substantial reduction of nitrogenous nutrients continues. Within the framework of this special programme, the quality of coastal and inland waters is constantly being monitored from the summer to the autumn, particularly the development of algae suspected to present risks for human health in waters close to the North Sea and Baltic Sea. The species of algae which constitute a health hazard are also being researched. This programme also concentrates particularly on the nutrient emissions of the agricultural land and green areas along rivers.

The town of Lübeck has drawn up a programme for the protection of the environment around the Travemünde-Priwall bathing area.

The town of Hamburg is carrying out major improvement schemes to protect lakes used by bathers. A limnological study, including improvement proposals, was carried out at the summer bathing resort of Volksdorf. The measures being considered include dredging excess sludge, reducing and controlling the fish stock, water filtration (to reduce the number of daphniae and improve the quality of marsh water), introducing aquatic plants and monitoring for three years.

Some of the investment cost — put at around DM 210 000 — will be met by the manager of the resort.

Improvement measures are also under way in the Eichbaumsee region. A pilot project currently being developed is to be completed in 1995, after which the scheme will become fully operational. Improvements have already been recorded.

Concerning the Farmsen resort, in 1993 a plant which can successfully eliminate phosphorous nutrients, thus gradually reducing the undesirable nutrients released by deep-water sediment, became operational for the first time. Two to three years of work will be needed to obtain the results hoped for (annual cost: DM 60 000). The plant will continue to operate in 1995.

The measures taken so far at the Altengamme resort have not proved fully successful, so new measures are in preparation (estimated cost: DM 76 000). A limnological study has also been published concerning the Öjendafer See region.

The town of Bremen set up an aeration unit to improve the water quality of Lake Sodenmatt. Additional measures are now being planned.

Several measures were taken in North Rhine-Westphalia. For example:

clearing up lake shores, cutting aquatic plants and limitation of feeding concerning aquatic birds (Unterbacher See);

filtering the lake water and dredging the sludge on the bottom of the lake (Freibad Wochtendonk);

adding spring water and an aeration system (Alsdorfer-Weiher);

lime treatment to comply with the minimum pH requirement (3), a derogation allowed by the Federal Ministry of Public Health, since the acidity of the lake water is caused by lignite mines (Zieselmaarsee);

monitoring farms and their slurry and manure storage; connecting up a camp-site to the town's sewage system (Bever-Talsperre);

closing a sewage-treatment plant near a dam and disposing of the effluent at a large-capacity treatment plant downstream (Liengesetalsperre);

installing filtration and drainage plants to keep out fertilizers, dredging the lake, putting down a layer of gravel to reduce sludge suspension, using chemicals in some areas to slow the development of algae (Berg Kamen).

In Hessen, measures were taken to limit the eutrophication of Lake Inheidener.

In Baden-Württemberg, research is being carried out to protect water quality. The measures being considered are enlargement of a district sewage-treatment plant, connecting up small housing developments to the main sewer, and using boats to go out and cut back algae.

In Bavaria, a recirculation system has been set up and limnological studies have been carried out. Measures are to be taken to reduce undesirable nutrients.

In Saarland, three bathing areas are of poor quality despite the sewage-treatment plant. The sewers will be systematically checked for leakages. If the situation does not improve, bathing will be prohibited in these bathing areas in 1995.

In Saxony, there are also various plans to improve the quality of bathing water.

Finally, in Saxony-Anhalt, the lake is being dredged and made deeper, and lime is being added to reduce phosphate levels and prevent the proliferation of blue algae.

Border changes

The German authorities have notified changes in the borders between the following *Länder*:

Mecklenburg-Western Pomerania and Lower Saxony;

Brandenburg and Mecklenburg-Western Pomerania.

3. Information summary

Maps 3 and 4 show the results recorded, in northern and southern Germany, during the 1994 bathing season.

They indicate for each district compliance of the bathing areas with the mandatory (I) values laid down in the Directive for total and faecal coliforms.

The methods of analysis used for these two parameters are described in the Directive. Depending on the laboratory, either membrane filtration with subculture on an appropriate medium and identification of the suspect colonies, or fermentation in multiple tubes was used.

Figures 1 and 2 show changes in compliance of bathing water as regards the first two parameters since 1991.

Table 3 — Summary

(Compliance of bathing areas with the standards for microbiological parameters — total and faecal coliforms — 1994 bathing season.)

Germany — 1994	Sea water	Freshwater
Number of sampling points	444	1 915
Number of points not sampled	8	40
Number of points insufficiently sampled	14	761
Number of points complying with mandatory (I) values	356	903
Number of points complying with guide (G) values	262	648
Number of points where bathing was prohibited	2	31
Average sampling frequency	12.0	8.2

Table 4 — Results for 1991 to 1994

Total: total number of sampling points;

C(I) %: percentage of points complying with the mandatory (I) values;

C(G) %: percentage of points complying with the guide (G) values;

I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

Germany	Total	C(I) (%)	C(G) (%)	I (%)
Sea water				
1991	532	66.7	17.9	2.3
1992	442	74.2	58.1	1.8
1993	436	76.4	61.0	7.3
1994	444	80.2	59.0	5.0
Freshwater				
1991	1 380	38.6	10.7	36.2
1992	1 817	39.0	29.8	27.4
1993	1 702	44.5	29.9	42.4
1994	1 915	47.2	33.8	41.8

4. Conclusion

In coastal bathing areas, an improvement in water quality was recorded in 1994.

In freshwater bathing areas, water quality improved slightly compared with previous bathing seasons. However, since sampling was insufficient in 42% of bathing areas, it is difficult to draw any final conclusions regarding this improvement.

As this percentage is so high, the Member State is requested to take appropriate measures in order to improve the situation.

D

Figure 1 — Germany — Results for sea water

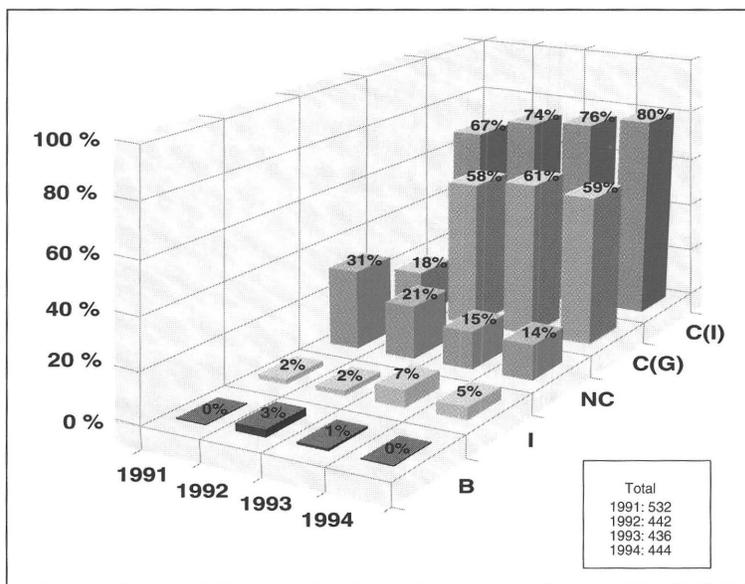
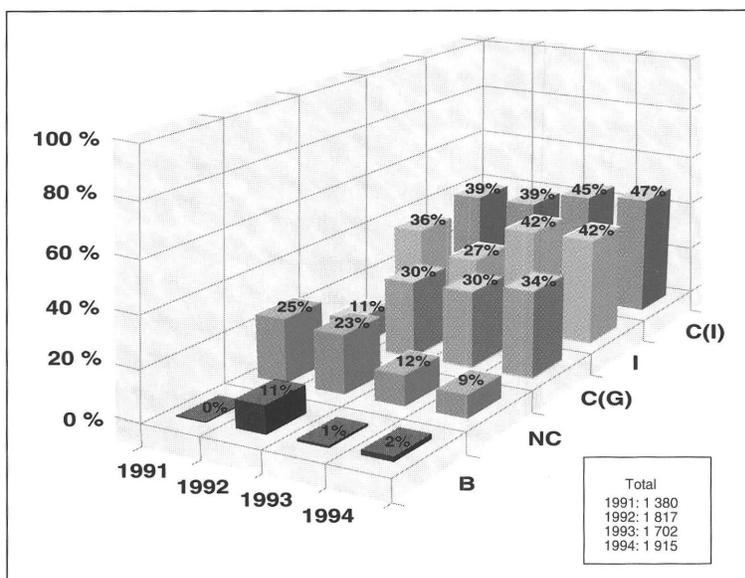
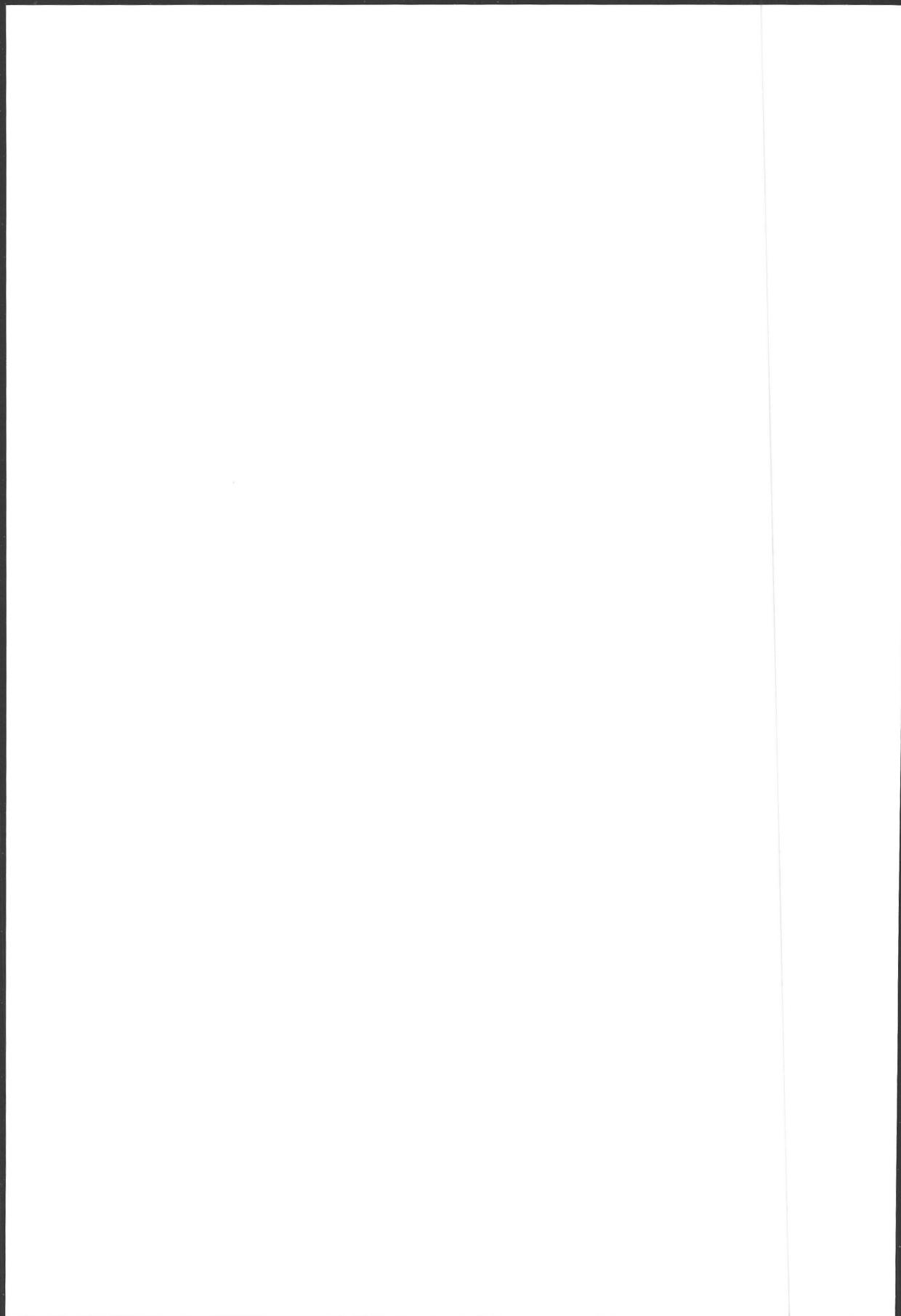


Figure 2 — Germany — Results for freshwater



Total: total number of sampling points;
 C(I): percentage of points complying with the mandatory (I) values;
 C(G): percentage of points complying with the guide (G) values;
 NC: percentage of points not complying with the mandatory (I) values;
 I: percentage of points not sampled or insufficiently sampled;
 B: percentage of points where bathing is prohibited.

The percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.



Greece

In accordance with Directive 76/160/EEC, bathing water quality was monitored systematically throughout the 1994 bathing season as part of the programme prepared by the Ministry of the Environment, Planning and Public Works.

GR

The bathing season generally runs from May to October. It varies between five and six months, depending on the geographical location and climate of the areas concerned. The season started later in 1994 because of bad weather.

The minimum number of samples which must be taken varies between 11 and 13, although the number may be reduced to six or seven in bathing areas where the water quality has complied with the mandatory values for the previous two years.

The location of the sampling points in the bathing areas corresponding to the definition in the Directive is chosen by the competent ministry.

1. Results

The results were assessed on the basis of the mandatory values laid down in the Directive. However, Greek legislation lays down stricter standards for four parameters:

faecal coliforms: 500/100 ml;

transparency: 2 m;

faecal streptococci: 100/100 ml;

floating materials: absence.

The last three parameters comply with the guide value specified in the Annex to the Directive.

Consequently, a different assessment of bathing water quality in certain areas would probably be made if the mandatory value set in the Directive for faecal coliforms (which is less stringent than the national value) were taken as the reference value.

The Directive sets only a guide value for faecal streptococci, dissolved oxygen and floating materials. The results of these three parameters were therefore assessed on the basis of this standard.

A — Sea water bathing areas

During the 1994 bathing season, 1 282 bathing areas were monitored. As compared with the monitoring programme of 1993, 39 sampling points were added, whereas 29 were either withdrawn, or not sampled, seven because of a decline in the use of these areas, 22 due to technical reasons. With the exception of only one, all the bathing areas were sampled at the required frequency.

GR

Table 1 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Greece — Sea water	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	1 013	20	1 195	13	1 240	22	1 259	27
Faecal coliforms	1 013	20	1 195	28	1 240	38	1 259	35
Faecal streptococci ¹	0	—	1 203	37	1 250	4	1 260	2
Salmonella	0	—	0	—	0	—	0	—
Enteroviruses	0	—	0	—	0	—	0	—
Physicochemical								
pH	0	—	0	—	0	—	0	—
Colour	1 019	2	1 195	12	1 240	0	1 259	0
Mineral oils	1 019	1	1 195	3	1 240	1	1 259	0
Surface-active substances	1 019	1	1 195	6	1 240	4	1 259	2
Phenols	1 019	8	1 195	6	1 240	0	1 259	0
Transparency	0	—	0	—	0	—	0	—
Dissolved oxygen ¹	0	—	0	—	0	—	0	—
Floating materials ¹	1 019	3	1 195	2	1 239	4	1 259	0
¹ Guide value only.								

Some 97% (1 216) of the areas sampled at the frequency required by the Directive complied with the mandatory values set for total coliforms and faecal coliforms.

For the 1994 bathing season, some 1 167 sampling points (93%) complied with the guide values for total and faecal coliforms.

The average sampling frequency for these parameters was 13. The Greek authorities carried out analyses for faecal streptococci at all their bathing areas and, with the exception of two, all areas complied with the guide values.

Greece saw no need to monitor for salmonella and enteroviruses.

The values set in the Directive for the physicochemical parameters were met in most cases. These parameters, unlike the microbiological parameters, are usually detected by visual or olfactory inspection, although in some cases the authorities did use analytical methods.



B — Freshwater bathing areas

Since Greece has few large rivers or lakes, inland bathing is rare. In 1994, four bathing areas were systematically monitored at Lake Vouliagmeni.

Table 2 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Greece — Freshwater	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	2	0	4	0	4	0	4	0
Faecal coliforms	2	0	4	0	4	0	4	0
Faecal streptococci ¹	0	—	4	0	4	0	4	0
Salmonella	0	—	0	—	0	—	0	—
Enteroviruses	0	—	0	—	0	—	0	—
Physicochemical								
pH	0	—	0	—	0	—	0	—
Colour	2	0	4	0	4	0	4	0
Mineral oils	2	0	4	0	4	0	4	0
Surface-active substances	2	0	4	0	4	0	4	0
Phenols	2	0	4	0	4	0	4	0
Transparency	0	—	0	—	0	—	0	—
Dissolved oxygen ¹	0	—	0	—	0	—	0	—
Floating materials ¹	2	0	4	0	4	0	4	0
¹ Guide value only.								

As in previous years, the results of the analyses at all four of these areas were in line with the values set by the Directive.

2. General information

Public information

GR

Information relating to the monitoring process on bathing water quality is available to the public by a telephone service in the regional laboratories, the local authorities and the central offices of the Ministry of the Environment.

The Ministry of the Environment is in permanent contact with the laboratories which participate in the network set up for the monitoring of bathing water. All the data are transmitted to the coordination unit for entry into a central database.

The Greek authorities make it clear that the information available to the public during the bathing season is merely for guidance. A global assessment of water quality is given at the end of the monitoring programme after full statistical analysis of the results. On the basis of this assessment, the Ministry of the Environment publishes an annual report available to the public. This report and the maps that go with it are sent to the press for publication.

During the 1994 bathing season the Greek authorities paid special attention to informing the public, and are planning to do more in this direction.

Protection measures

Before the beginning of the bathing season, the Ministry of Health and Social Welfare decides whether to prohibit bathing in certain areas. Decisions are based on the results for the previous bathing season and on inspections of the different bathing areas. In agreement with the local authorities concerned, the results are published in the press.

During the bathing season, sampling results which exceed the guide values or mandatory values set in the Directive are immediately forwarded to the coordination unit and to the head of the prefectural authorities office in the Ministry of the Environment, who endeavours to determine the causes, with the assistance of the departments responsible in the Ministry of Health and Social Welfare. Often sampling and measurement is then repeated and stricter monitoring carried out.

Improvement schemes

Evolution of results over several bathing seasons shows that pollution continues to occur in a few cases. In the region of Attiki, which is permanently polluted, the completion of a waste water treatment plant for the Athens conurbation should improve the quality of water in the Saronic Gulf. This plant is being financed from the Community's Structural Funds.

GR

3. Information summary

Map 5 shows the results for the 1994 bathing season in Greece.

It indicates for each district the compliance of the bathing areas with the mandatory (I) values laid down in the Directive for total and faecal coliforms.

The methods used to analyse these two parameters are those specified in the Directive, namely lactose fermentation in multiple tubes followed by a confirmation test, or membrane filtration with subculture on an appropriate medium and identification of the suspect colonies.

Figures 1 and 2 show changes in compliance of bathing water as regards the first two microbiological parameters since 1991.

Table 3 — Summary

(Compliance of bathing areas with the standards for microbiological parameters — total and faecal coliforms — 1994 bathing season.)

Greece — 1994	Sea water	Freshwater
Number of sampling points	1 282	4
Number of points not sampled	22	0
Number of points insufficiently sampled	1	0
Number of points complying with mandatory (I) values	1 216	4
Number of points complying with guide (G) values	1 167	1
Number of points where bathing was prohibited	0	0
Average sampling frequency	13.2	11.5

GR

Table 4 — Results for 1991 to 1994

Total: total number of sampling points;
 C(I) %: percentage of points complying with the mandatory (I) values;
 C(G) %: percentage of points complying with the guide (G) values;
 I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

Greece	Total	C(I) (%)	C(G) (%)	I (%)
Sea water				
1991	1 097	89.8	85.0	7.7
1992	1 203	96.7	94.9	0.7
1993	1 250	96.1	93.6	0.8
1994	1 282	94.9	91.0	1.8
Freshwater				
1991	6	33.3	33.3	66.7
1992	4	100.0	75.0	0.0
1993	4	100.0	50.0	0.0
1994	4	100.0	25.0	0.0

4. Conclusion

The results recorded in 1994 once again confirmed the very high quality of bathing water.

The vast majority of identified zones are sea water bathing areas. Water quality is shown to be very stable and has a high rate of compliance both with the mandatory values and with the guide values specified in the Annex to the Directive.

Figure 1 — Greece — Results for sea water

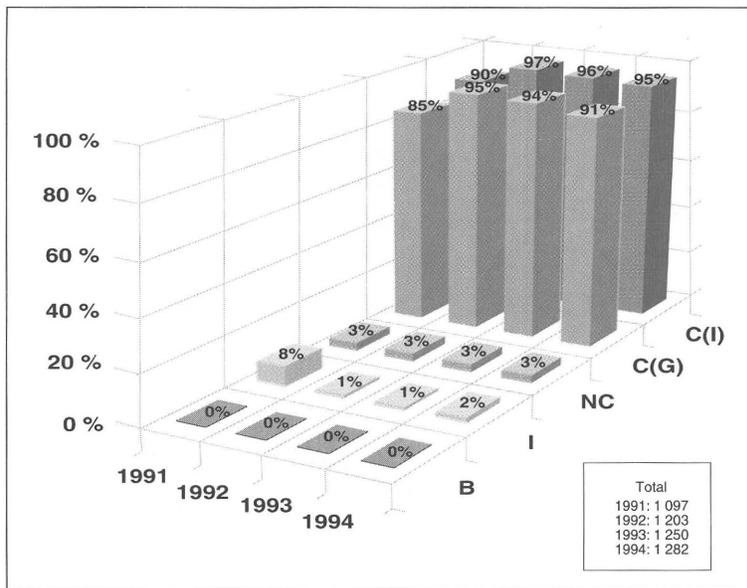
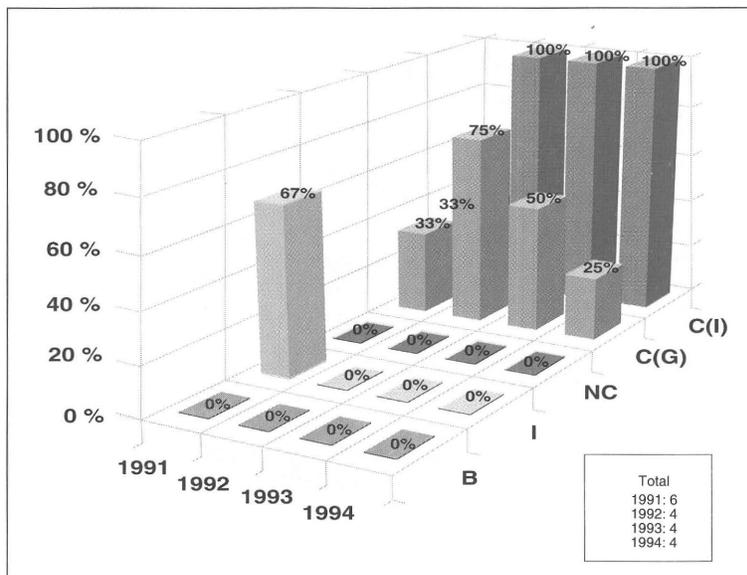
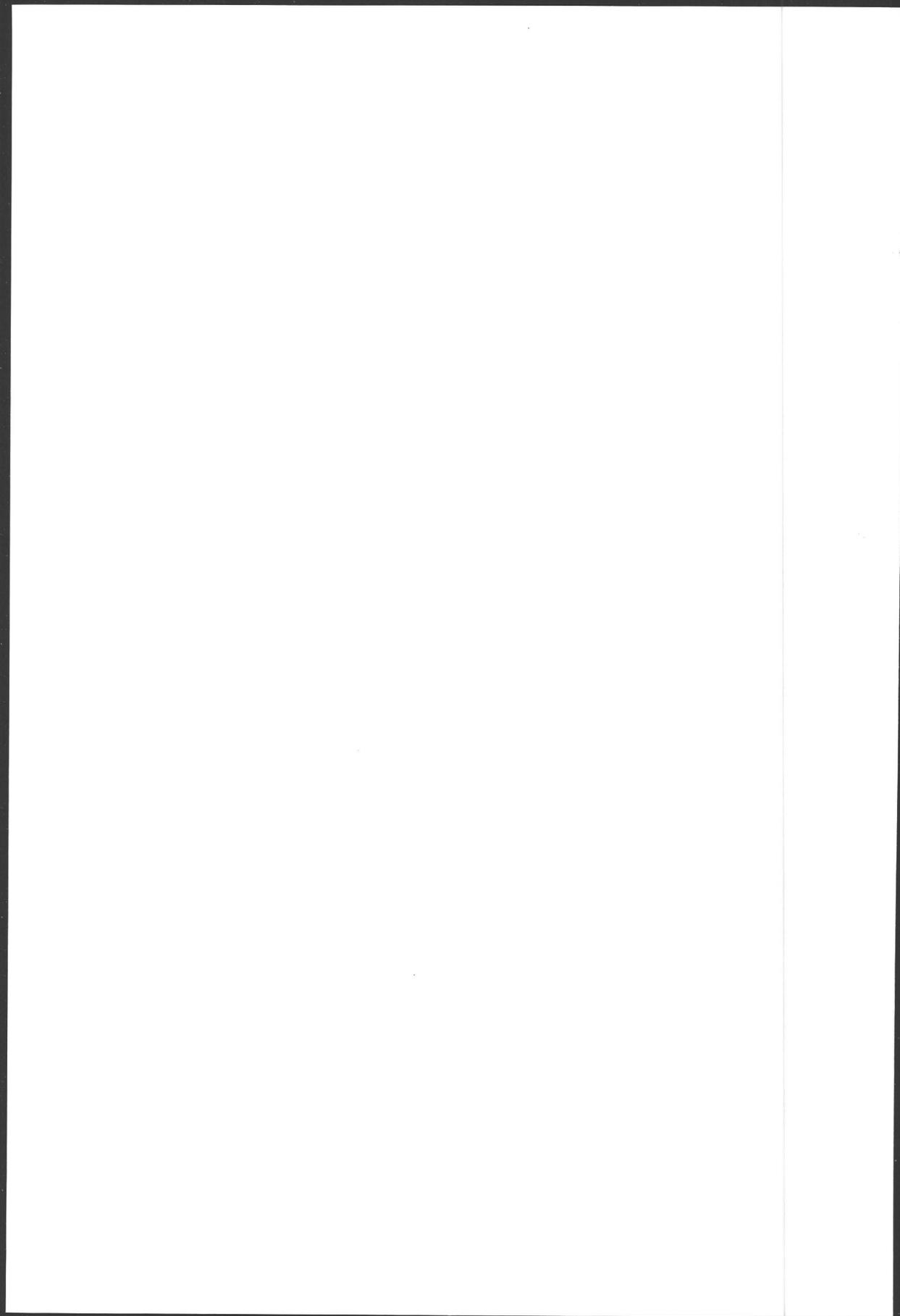


Figure 2 — Greece — Results for freshwater



Total: total number of sampling points;
 C(I): percentage of points complying with the mandatory (I) values;
 C(G): percentage of points complying with the guide (G) values;
 NC: percentage of points not complying with the mandatory (I) values;
 I: percentage of points not sampled or insufficiently sampled;
 B: percentage of points where bathing is prohibited.

The percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.



Spain

Spain provided a report prepared by the Ministry of Health and Consumer Affairs.

The length of the bathing season is decided by each autonomous region and depends on geographical factors, climate and tourism. It varies between three and five months at the coast and one and a half and four and a half months for inland waters.

The minimum number of samples which must be taken therefore varies between 7 and 11 at the coast and between 4 and 10 inland. In practice, between 9 and 40 samples are usually taken at the coast and between 5 and 20 inland.

1. Results

The results were assessed on the basis of the mandatory values laid down in the Directive, which are the same as the limit values set in Spanish legislation, except for faecal streptococci, dissolved oxygen and floating materials, for which the guide values were used.

The Spanish authorities classify bathing water into three quality categories:

Category 2: water complying with the mandatory values and guide values for each parameter measured or assessed;

Category 1: water complying with the mandatory values for each parameter measured or assessed;

Category 0: water not complying with the mandatory values for one or more of the parameters measured or assessed.

A — *Sea water bathing areas*

In 1994, 1 490 bathing areas were monitored. This is 85 (6%) more than in 1993.

While the number of areas monitored has increased substantially since 1991, the location of certain sampling points also appears to have changed. For administrative reasons, new sampling points have been added, while points monitored in earlier years have been withdrawn from the monitoring programme.

Table 1 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Spain — Sea water	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	1 290	79	1 335	67	1 399	37	1 479	31
Faecal coliforms	1 290	130	1 335	93	1 399	54	1 479	47
Faecal streptococci ¹	1 013	439	1 178	435	1 399	308	1 479	326
Salmonella	586	18	546	20	640	15	700	9
Enteroviruses	0	—	1	0	85	0	135	0
Physicochemical								
pH	840	0	1 258	4	1 330	0	1 163	1
Colour	1 290	32	1 335	25	1 399	18	1 479	16
Mineral oils	1 290	28	1 335	10	1 399	4	1 479	4
Surface-active substances	1 290	46	1 335	26	1 399	14	1 479	10
Phenols	1 290	16	1 335	13	1 399	9	1 479	5
Transparency	1 286	63	1 335	16	1 399	13	1 479	16
Dissolved oxygen ¹	407	0	801	2	786	3	646	0
Floating materials ¹	1 289	118	1 333	171	1 398	36	1 231	36
¹ Guide value only.								

In 1994, 96% of the areas sampled complied with the mandatory values for total and faecal coliforms.

Reference to the figures for 1991, 1992 and 1993 shows that some sampling points failed to meet the limit values for four consecutive years, indicating a recurrent pollution problem in certain areas.

For the 1994 bathing season, the guide values were met by 83% of bathing areas. The presence of salmonella was recorded in only one area.

Analyses for salmonella were carried out at 47% of the sampling points and enteroviruses were monitored at 9% of the bathing areas.

Analyses for faecal streptococci were carried out systematically. At 78% of the points sampled at the required frequency, the results were in compliance with the guide value set in the Directive.

As regards the physicochemical parameters, 98% of bathing areas complied with the limits set for mineral oils, surface-active substances and phenols.

E

B — Freshwater bathing areas

The number of inland bathing areas monitored has increased substantially (by almost 28%) since 1991.

Since 1991, the number of monitored bathing areas has increased considerably. However, the locations of certain sampling points have also changed. For administrative reasons, new sampling points have been added, while points monitored in earlier years have been withdrawn from the monitoring programme.

In all, 221 (71%) of the 310 points sampled at the required frequency complied with the mandatory values for total and faecal coliforms. This is equivalent to 64% of all identified bathing areas.

Reference to the figures for 1991, 1992 and 1993 shows that many sampling points failed to meet the limit values for four consecutive years, indicating recurrent pollution problems in these areas.

For the 1994 bathing season, the guide values were met by 26% of all identified bathing areas. Among these, salmonella was detected at three bathing areas.

Analyses for salmonella were carried out at about half of the sampling points and enteroviruses were monitored at 26% of all identified bathing areas.

Table 2 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Spain — Freshwater	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	242	49	294	87	289	70	310	70
Faecal coliforms	240	53	294	96	289	72	310	69
Faecal streptococci ¹	133	69	210	133	209	109	246	144
Salmonella	61	1	180	19	138	16	173	15
Enteroviruses	0	—	44	0	19	0	91	0
Physicochemical								
pH	165	2	260	9	250	3	230	4
Colour	225	16	294	27	289	20	310	18
Mineral oils	223	6	294	2	289	4	310	5
Surface-active substances	223	9	294	10	289	8	310	13
Phenols	223	4	294	2	289	4	310	1
Transparency	238	24	294	39	289	14	310	22
Dissolved oxygen ¹	111	24	156	19	166	23	137	4
Floating materials ¹	111	7	209	10	256	13	211	21
¹ Guide value only.								

As regards the physicochemical parameters, 294 (95%) of the areas sampled at the required frequency complied at the same time with the limits set for mineral oils, surface-active substances and phenols.

2. General information

Public information

The Ministry of Health and Consumer Affairs publishes, on the basis of data provided by the autonomous communities, a detailed annual report on the quality of bathing water at a national level. This report is then made available to the national press.

During the bathing season, local and autonomous authorities publish information on the most recent results either in the press or on posters in the bathing areas. There are also announcements on the radio.

Improvement schemes

Measures to improve health conditions at the sampling points which in 1994 failed to comply with the Directive are set out in a document, called 'Health measures'.

The various autonomous communities as well as the Ministry of Public Works, Transport and the Environment are responsible for planning and implementing infrastructure improvement schemes.

Moreover, in each bathing area, the Spanish authorities have identified discharges which could impair water quality in each bathing area.

Water resources

As in previous years the quality of bathing water suffered from the prolonged period of drought which is still continuing to affect the region.

This was recognized in the Royal Decree Law of February 1995, which sets out emergency water supply measures. The first paragraphs mention that the last three years — 1991 to 1994 — have been the driest of the century, particularly for the hydrographic basins of the Guadiana, Guadalquivir, Sur, Segura and Júcar rivers and for a large part of the Tajo. Moreover, this critical situation became worse at the beginning of 1995 and water reservoir levels are now critically low. Groundwater levels in these areas are also worrying, especially in Levante and La Mancha.

3. Information summary

Map 6 shows the results for the 1994 bathing season in Spain.

It indicates for each district the compliance of the bathing areas with the mandatory (I) values laid down in the Directive for total and faecal coliforms.

The methods of analysis used for these two parameters are described in the Directive. Depending on the laboratory, either membrane filtration and culture on an appropriate medium and identification of suspect colonies or fermentation in multiple tubes was used.

Figures 1 and 2 show changes since 1991 in compliance of bathing water as regards the first two parameters.

Table 3 — Summary

(Compliance of bathing areas with the standards for microbiological parameters — total and faecal coliforms — 1994 bathing season.)

Spain — 1994	Sea water	Freshwater
Number of sampling points	1 490	346
Number of points not sampled	11	36
Number of points insufficiently sampled	0	2
Number of points complying with mandatory (I) values	1 432	221
Number of points complying with guide (G) values	1 243	89
Number of points where bathing was prohibited	0	0
Average sampling frequency	15.2	7.3

Table 4 — Results for 1991 to 1994

Total: total number of sampling points;

C(I) %: percentage of points complying with the mandatory (I) values;

C(G) %: percentage of points complying with the guide (G) values;

I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

Spain	Total	C(I) (%)	C(G) (%)	I (%)
Sea water				
1991	1 303	88.9	68.3	1.0
1992	1 335	92.8	73.4	0.0
1993	1 405	95.4	79.8	0.4
1994	1 490	96.1	83.4	0.7
Freshwater				
1991	271	65.7	37.6	11.4
1992	301	61.1	21.9	2.3
1993	312	64.7	27.6	7.4
1994	346	63.6	25.7	11.0

4. Conclusion

The quality of coastal bathing water has improved substantially over the last four years. The compliance rate in areas sampled at the required frequency rose from 89% in 1991 to 96% in 1994.

For inland waters, the compliance rate remains low. This is partly the result of a prolonged and particularly worrying period of drought. Consequently, the Member State is requested to step up the efforts undertaken to improve this situation.

Finally, it should be emphasized that for both inland and mainly coastal waters the number of bathing areas monitored has increased substantially since 1991.

E

Figure 1 — Spain — Results for sea water

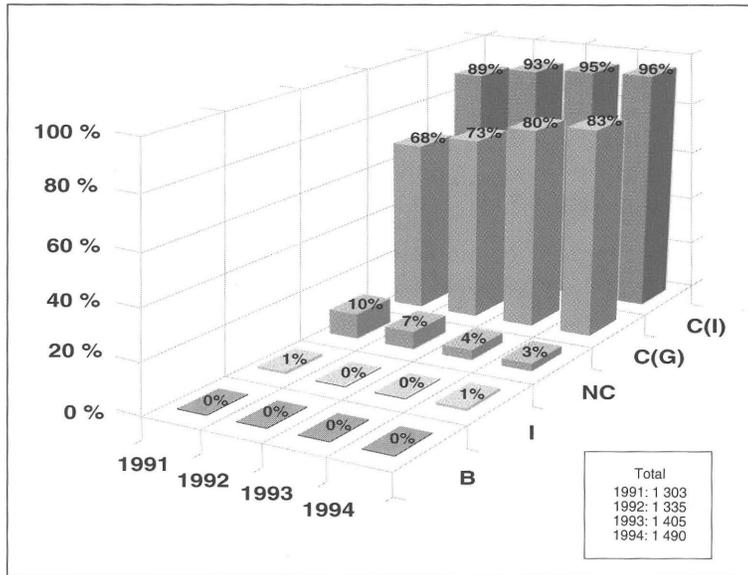
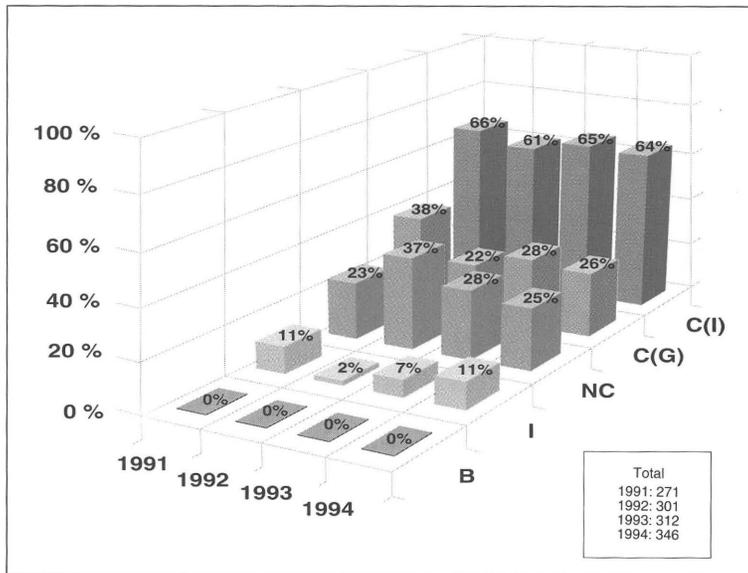


Figure 2 — Spain — Results for freshwater



Total: total number of sampling points;
 C(I): percentage of points complying with the mandatory (I) values;
 C(G): percentage of points complying with the guide (G) values;
 NC: percentage of points not complying with the mandatory (I) values;
 I: percentage of points not sampled or insufficiently sampled;
 B: percentage of points where bathing is prohibited.

The percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

France

Monitoring of bathing water quality is organized by the Ministry of Health which coordinates the data submitted by the Department of Health and Social Affairs in each region. The Ministry also forwards the data for publication in the Commission's report.

The length of the bathing season varies throughout French territory. It is defined locally according to the degree of use of the area.

In coastal areas, the length of the bathing season is more or less constant, generally lasting three to four months for metropolitan France. For Guadeloupe, French Guiana, Martinique and Réunion, it lasts all year.

For inland waters, on the other hand, the length of the bathing season can range from two to nine months (overseas departments).

In 1994, the French authorities recommended that the length of the bathing season should be harmonized, suggesting the following minimum durations: from the 15 June to the 15 September for sea water bathing areas, and the months of July and August for freshwater bathing areas.

Using the extremes as a reference, the number of samples required varies between 5 and 24, or possibly between 3 and 12 in areas where the water quality has complied with the mandatory values for the previous two years.

The monitoring programme is organized at the beginning of the season by the Department of Health and Social Affairs in each region, in coordination with the Sea Water Quality Units, the municipal authorities and the approved laboratories.

1. Results

The results were assessed on the basis of the mandatory values laid down in the Directive, except for faecal streptococci, dissolved oxygen and floating materials, for which the guide values were used. The Directive lays down no mandatory values for these parameters.

Based on these limit values and on the percentages set in the Directive, the French authorities assign bathing water four categories:

- A: high quality;
- B: moderate quality;
- C: temporary pollution possible;
- D: poor quality.

Bathing water in categories A and B complies with the limit values set by Directive 76/160/EEC. Water in category A also complies with the guide values for total coliforms, faecal coliforms and faecal streptococci.

A — Sea water bathing areas

A total of 1 870 sea water bathing areas in France were monitored in 1994, which is 14 more than in 1993 but also 62 fewer than in 1992 because of reorganization of the monitoring programme.

Table 1 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

France — Sea water	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	1 463	61	1 756	111	1 692	74	1 853	78
Faecal coliforms	1 463	125	1 756	225	1 692	146	1 853	145
Faecal streptococci ¹	1 526	381	1 884	700	1 849	544	1 870	585
Salmonella	0	—	0	—	88	0	106	2
Enteroviruses	0	—	0	—	0	—	26	0
Physicochemical								
pH	—	—	225	7	181	83	105	33
Colour	—	—	0	—	0	—	127	0
Mineral oils	—	—	1 618	26	26	0	933	0
Surface-active substances	—	—	1 618	137	0	—	935	0
Phenols	—	—	1 618	0	0	—	878	2
Transparency	—	—	0	—	124	56	261	131
Dissolved oxygen ¹	—	—	0	—	54	0	47	0
Floating materials ¹	—	—	1 618	142	9	0	148	0
¹ Guide value only.								

Of the 1 853 areas sampled at the frequency required by the Directive, 91% complied with the mandatory values for total and faecal coliforms. This is equivalent to 90% of all the 1 870 identified bathing areas.

For the 1994 bathing season, a total of 1 297 sampling points complied with the guide values for total and faecal coliforms, representing 69% of all bathing areas.

Monitoring for salmonella and enteroviruses was carried out in only 6 and 1% of bathing areas respectively.

Finally, the authorities carried out systematic analyses for faecal streptococci, for which there is only a guide value set in the Annex to the Directive: 69% of all bathing areas complied with this standard.

The results of analyses of surface-active substances, phenols and transparency were notified in about half of the cases. Elsewhere results were much less complete. The limit values most often exceeded were pH and transparency.

F

B — Freshwater bathing areas

A total of 1 666 inland bathing areas in France were monitored in 1994, which is six more than in 1993, but also 88 fewer than in 1992 because of reorganization of the monitoring programme. Some sampling points (17) were not followed in 1994. Therefore, no result has been transmitted for these 17 points.

In the 1994 bathing season, 87% of the areas sampled at the required frequency complied with the mandatory values for total and faecal coliforms. This was equivalent to 79% of all the identified bathing areas.

Because of recurrent sources of pollution, bathing was prohibited in four inland bathing areas in 1994.

For the 1994 bathing season, some 36% of freshwater bathing areas complied with the guide values. Monitoring of salmonella was carried out in 4% of bathing areas. There was virtually no monitoring of enteroviruses.

Finally, the French authorities carried out systematic analyses for faecal streptococci, for which the Annex to the Directive sets only a guide value; 49% of bathing areas complied with this standard.

As regards physicochemical parameters, only pH was monitored consistently (64% of cases). There were cases where pH limit values were exceeded — and the same goes for transparency.

Table 2 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

France — Freshwater	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	1 615	106	1 650	181	1 553	135	1 519	113
Faecal coliforms	1 615	167	1 652	247	1 544	197	1 510	153
Faecal streptococci ¹	1 743	592	1 671	945	1 611	849	1 644	820
Salmonella	0	—	1	1	101	5	59	4
Enteroviruses	0	—	0	—	4	1	0	—
Physicochemical								
pH	—	—	1 490	150	1 005	100	1 071	127
Colour	—	—	0	—	107	0	224	0
Mineral oils	—	—	1 507	14	66	0	581	0
Surface-active substances	—	—	1 507	121	19	0	569	0
Phenols	—	—	1 506	0	15	1	540	3
Transparency	—	—	0	—	183	70	405	151
Dissolved oxygen ¹	—	—	8	8	121	0	227	0
Floating materials ¹	—	—	1 506	108	9	0	42	0
¹ Guide value only.								

2. General information

Public information

The assessment of the follow-up of the bathing water quality is presented by the Ministers for Health and Environment at a press conference, followed by information campaigns in the departments.

At this time, a large circulation is achieved thanks to maps and reports on bathing water quality and the possible pollution causes.

The public is kept informed of the most recent results of analysis via Minitel (3615) under the heading 'Infoplage'. Notes are also displayed at bathing areas and at town halls.

Improvement schemes

Despite the progress of improvement schemes in France in recent years, local authorities still need to step up their efforts in order to improve water quality overall. The target set for the year 2000 is for a reliable collection system for urban waste water and improved performance of treatment plants in accordance with the requirements of Directive 91/271/EEC concerning urban waste water treatment.

3. Information summary

Maps 7 and 8, relating to sea water and freshwater respectively, show the results for the 1994 bathing season.

They indicate for each district the compliance of the bathing areas with the mandatory (I) values laid down in the Directive for total and faecal coliforms.

The methods of analysis used for these two parameters were those laid down by the Directive. Depending on the laboratory, they were either membrane filtration with subculture on an appropriate medium and confirmation of colonies, or fermentation in multiple tubes followed by a confirmation test. In some districts the microplaque method was used.

Figures 1 and 2 show changes in the compliance of bathing water as regards the first two microbiological parameters since 1991.

Table 3 — Summary

(Compliance of bathing areas with the standards for microbiological parameters — total and faecal coliforms — 1994 bathing season.)

France — 1994	Sea water	Freshwater
Number of sampling points	1 870	1 666
Number of points not sampled	0	17
Number of points insufficiently sampled	17	137
Number of points complying with mandatory (I) values	1 690	1 320
Number of points complying with guide (G) values	1 297	596
Number of points where bathing was prohibited	0	4
Average sampling frequency	11.2	5.9

According to the French authorities, 125 of the 137 sampling points with inadequate frequency are located in the overseas departments. In these departments, their statistical interpretation could not be carried out despite a relevant number of samples taken, because of the length of the bathing season and the newness of these follow-up programmes.

Table 4 — Results for 1991 to 1994

Total: total number of sampling points;
 C(I) %: percentage of points complying with the mandatory (I) values;
 C(G) %: percentage of points complying with the guide (G) values;
 I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

France	Total	C(I) (%)	C(G) (%)	I (%)
Sea water				
1991	1 556	85.6	67.7	4.0
1992	1 932	78.6	58.4	9.1
1993	1 856	82.3	64.7	8.8
1994	1 870	90.3	69.4	0.9
Freshwater				
1991	1 744	81.3	40.1	7.4
1992	1 754	77.9	35.1	6.0
1993	1 660	79.1	37.2	7.1
1994	1 666	79.2	35.8	9.2

4. Conclusion

For coastal areas, the compliance rate has significantly increased in comparison with the 1993 bathing season, to reach 90%, which testifies to the good quality of bathing water in the identified bathing areas.

The situation for inland bathing areas has remained more or less unchanged. The Member State should continue its efforts to improve water quality.

As regards the insufficiency of sampling, the results for sea water have improved notably. For freshwater bathing areas, on the other hand, the sampling is still insufficient, essentially in the overseas departments.

Figure 1 — France — Results for sea water

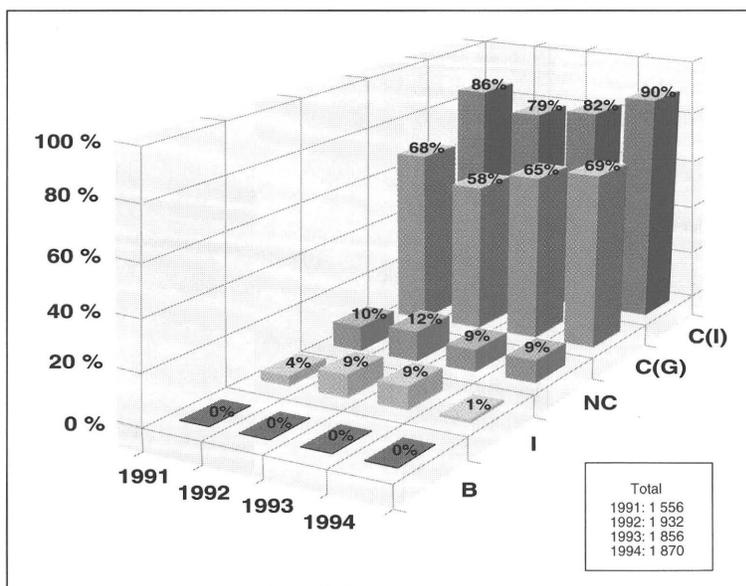
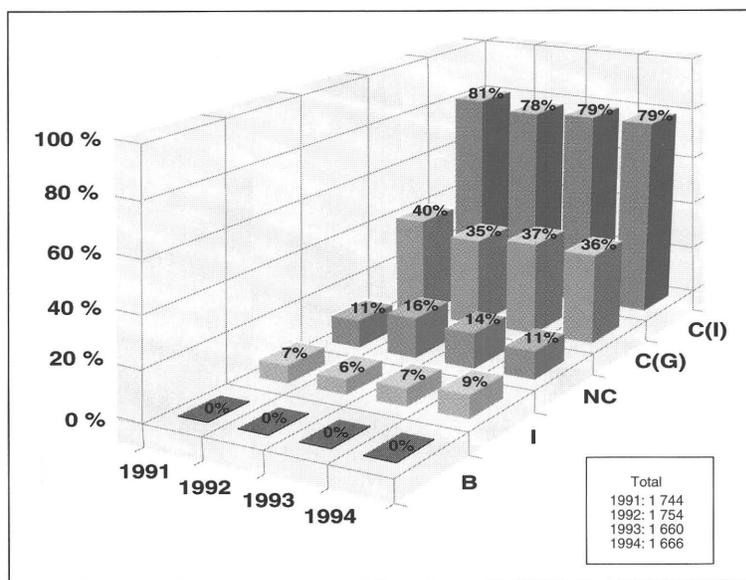
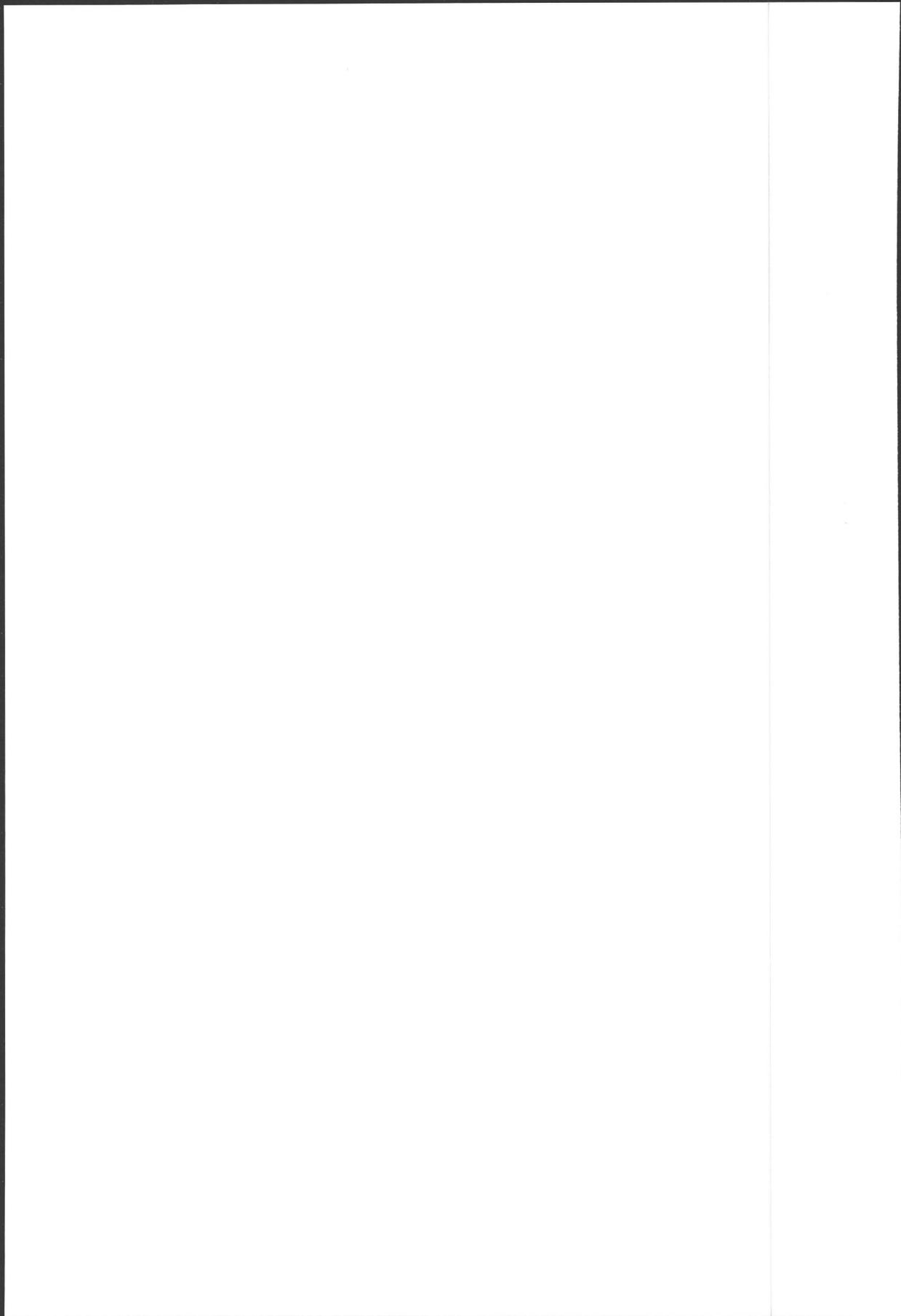


Figure 2 — France — Results for freshwater



Total: total number of sampling points;
 C(I): percentage of points complying with the mandatory (I) values;
 C(G): percentage of points complying with the guide (G) values;
 NC: percentage of points not complying with the mandatory (I) values;
 I: percentage of points not sampled or insufficiently sampled;
 B: percentage of points where bathing is prohibited.

The percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.



Ireland

Ireland provided a report on the 1994 bathing season prepared by the Department of the Environment.

The bathing season runs from 1 June to 31 August.

The minimum number of samples which must be taken is therefore seven, although this may be reduced to four in bathing areas where the water quality has complied with the mandatory values for the previous two years.

1. Results

The results were assessed on the basis of the mandatory values laid down in the Directive. However, Irish legislation has set more stringent standards for the following parameters:

- total coliforms: 5 000/100 ml;
- faecal coliforms: 1 000/100 ml;
- faecal streptococci: 300/100 ml;
- dissolved oxygen: 70 to 120%.

With regard to faecal streptococci, dissolved oxygen and floating materials, the Directive provides only guide values; the results for these three parameters have been assessed in the light of these values.

A — *Sea water bathing areas*

The number of bathing areas has increased from 89 in 1992 to 107 in 1994; monitoring was carried out at 108 sampling points.

For the 1994 bathing season, all the sampling points complied with the mandatory values laid down for total and faecal coliforms in the Directive. This represents an improvement over last year's figure, which was 96%. Compared with the more stringent limit values set in Irish legislation, this percentage is also 100, against 86 in 1993.

IRL

Table 1 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Ireland — Sea water	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	64	1	90	1	90	1	108	0
Faecal coliforms	64	0	90	5	90	4	108	0
Faecal streptococci ¹	17	5	56	6	89	5	106	9
Salmonella	13	0	16	0	16	1	14	0
Enteroviruses	3	0	1	0	1	0	1	0
Physicochemical								
pH	33	0	53	0	68	0	65	0
Colour	64	1	90	1	89	4	108	0
Mineral oils	64	0	90	0	89	0	108	0
Surface-active substances	64	0	90	0	89	0	108	0
Phenols	63	0	90	0	89	0	108	0
Transparency	64	3	84	4	79	5	108	3
Dissolved oxygen ¹	17	3	29	0	34	2	35	3
Floating materials ¹	63	1	89	0	89	0	108	0
¹ Guide value only.								

In addition, in the 1994 bathing season, 90% of the sampling points complied with the guide values for total and faecal coliforms. This is a net improvement over 1993, when 76% of the sampling points complied with the guide values.

Tests for salmonella were carried out in 13% of bathing areas and it was not found at any sites tested. With the exception of an isolated case, the Irish authorities did not consider it necessary to monitor for enteroviruses because of the high quality of the bathing water.

The Irish authorities carried out systematic tests on the numbers of faecal streptococci in 106 of the 108 identified bathing areas and found that 92% of the bathing areas — i.e. 97 sampling points — complied with the Directive, which specifies a guide value only.

As regards the physicochemical parameters, the few marginal problems regarding transparency were identified as being of natural origin.

B — Freshwater bathing areas

The number of freshwater bathing areas increased from five in 1993 to nine in 1994.

Table 2 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Ireland — Freshwater	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	—	—	5	0	5	0	9	0
Faecal coliforms	—	—	5	0	5	0	9	0
Faecal streptococci ¹	—	—	3	1	5	0	8	0
Salmonella	—	—	3	0	3	1	3	0
Enteroviruses	—	—	0	—	0	—	0	—
Physicochemical								
pH	—	—	5	0	5	0	8	0
Colour	—	—	5	0	5	1	9	0
Mineral oils	—	—	5	0	5	0	9	1
Surface-active substances	—	—	5	0	5	0	9	0
Phenols	—	—	5	0	5	0	9	0
Transparency	—	—	5	1	4	0	9	0
Dissolved oxygen ¹	—	—	2	0	5	0	5	0
Floating materials ¹	—	—	2	0	2	0	5	0
¹ Guide value only.								

All the inland bathing areas complied with the mandatory values laid down for total and faecal coliforms in the 1994 bathing season, and eight of the nine areas (89%) also complied with the guide values for these parameters.

The only breach of standards as regards the physicochemical parameters in relation to mineral oils was identified as being an isolated pollution incident.

2. General information

Public information

National legislation requires that local authorities publish the most recent statistics on bathing water quality at or near bathing areas. A more detailed record of this information is available for public consultation in local authority offices.

Finally, national results are published regularly in a Department of the Environment bulletin, which is available free of charge to the public, nature conservation groups, etc.

Improvement schemes

Bathing water quality in Ireland is generally good. However, there are recurrent pollution problems in certain bathing areas in the Dublin area.

To resolve this problem, the authorities intend to improve sewage treatment at Ringsend and Howth. The work should be finished by the year 2000.

3. Information summary

Map 9 shows the results for the 1994 bathing season in Ireland.

It indicates for each district the compliance of the bathing areas with the mandatory (I) values laid down in the Directive for total and faecal coliforms.

The method of analysis used for these two parameters was membrane filtration and culture on an appropriate medium.

Figures 1 and 2 show changes in compliance of bathing water as regards the first two microbiological parameters since 1991.

Table 3 — Summary

(Compliance of bathing areas with the standards for microbiological parameters — total and faecal coliforms — 1994 bathing season.)

Ireland — 1994	Sea water	Freshwater
Number of sampling points	108	9
Number of points not sampled	0	0
Number of points insufficiently sampled	0	0
Number of points complying with mandatory (I) values	108	9
Number of points complying with guide (G) values	97	8
Number of points where bathing was prohibited	0	0
Average sampling frequency	9.8	11.4

Table 4 — Results for 1991 to 1994

Total: total number of sampling points;

C(I) %: percentage of points complying with the mandatory (I) values;

C(G) %: percentage of points complying with the guide (G) values;

I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

Ireland	Total	C(I) (%)	C(G) (%)	I (%)
Sea water				
1991	65	96.9	83.1	1.5
1992	90	94.4	86.7	0.0
1993	90	95.6	75.6	0.0
1994	108	100.0	89.8	0.0
Freshwater				
1991	—	—	—	—
1992	5	100.0	80.0	0.0
1993	5	100.0	100.0	0.0
1994	9	100.0	88.9	0.0

4. Conclusion

The quality of bathing water in the areas identified by the Member State is generally very good.

It can be said that all bathing areas comply not only with the standards laid down in the Directive but also with the more stringent standards prescribed by Irish legislation.

Figure 1 — Ireland — Results for sea water

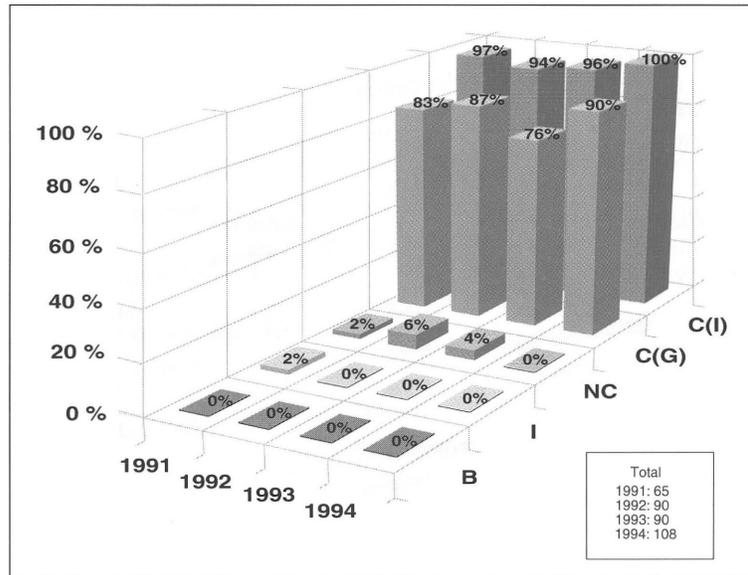
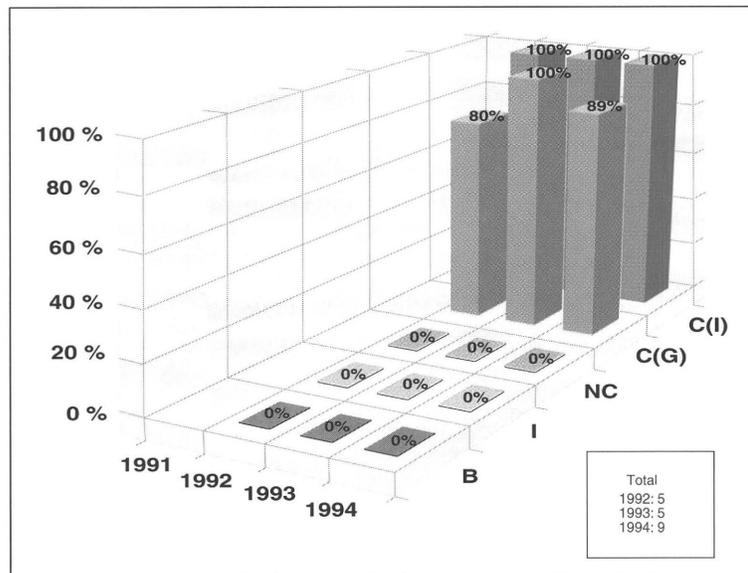


Figure 2 — Ireland — Results for freshwater



Total: total number of sampling points;
 C(I): percentage of points complying with the mandatory (I) values;
 C(G): percentage of points complying with the guide (G) values;
 NC: percentage of points not complying with the mandatory (I) values;
 I: percentage of points not sampled or insufficiently sampled;
 B: percentage of points where bathing is prohibited.

The percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

Italy

Italy provided a report prepared by the Ministry of Health based on figures provided by health and pollution-prevention laboratories and multiarea pollution-prevention agencies ('Presidi multizonali di prevenzione').

The bathing season runs from 1 May to 30 September with the exception of Sicily where it extends to 31 October.

Therefore, according to the Directive, the minimum number of samples which must be taken is 11 and 13 respectively. However, this may be reduced to six and seven respectively in bathing areas which have complied with the mandatory values for the previous two years.

1. Results

The results were assessed on the basis of the mandatory values laid down in the Directive. However, Italian legislation sets stricter standards for the following parameters:

total coliforms: 2 000/100 ml;

faecal coliforms: 100/100 ml;

faecal streptococci: 100/100 ml;

dissolved oxygen: 70 to 120 %;

mineral oils: ≤ 0.5 mg/l where determined by extraction;

surface-active substances: ≤ 0.5 mg/l where determined by spectrophotometry.

Consequently, a different assessment of bathing water quality in certain areas would probably be made if the mandatory values laid down in the Directive (which are less stringent than the national standards) were taken as the reference values.

For faecal streptococci, dissolved oxygen and floating materials, the Directive sets only guide values; the results for these three parameters were therefore assessed on the basis of these values.

A — *Sea water bathing areas*

During the 1994 bathing season, 4 543 bathing areas were monitored, which is an increase of 255 areas. This increase is due to the application of a national standard fixing the maximum distance between two consecutive sampling points

at 2 km. This standard also entailed a change in the location of their sampling points.

Table 1 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Italy — Sea water	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	3 748	211	4 000	218	4 017	148	4 173	155
Faecal coliforms	3 748	262	4 000	280	4 018	229	4 170	203
Faecal streptococci ¹	3 824	399	4 033	343	4 288	324	4 543	314
Salmonella	704	11	610	24	475	18	538	31
Enteroviruses	8	0	0	—	4	0	0	—
Physicochemical								
pH	3 824	8	4 033	8	4 288	5	4 543	12
Colour	3 748	126	4 000	99	4 069	151	4 180	109
Mineral oils	3 748	0	4 000	0	4 110	0	4 240	0
Surface-active substances	3 748	0	4 000	0	4 110	0	4 240	0
Phenols	3 748	8	4 000	10	4 107	3	4 238	10
Transparency	3 748	349	3 999	259	3 986	251	4 092	142
Dissolved oxygen ¹	3 823	456	4 031	501	4 287	602	4 543	495
Floating materials ¹	0	—	0	—	0	—	0	—
¹ Guide value only.								

Of the 4 159 points sampled at the frequency required, 94% complied with the mandatory values set for total and faecal coliforms. This is equivalent to 86% of all the 4 543 identified bathing areas.

Moreover, for the 1994 bathing season, 81% of the monitoring points complied with the guide values for total coliforms and faecal coliforms. In addition, the absence of salmonella was confirmed at approximately 11% of bathing areas. Italy saw no need to monitor enteroviruses.

Analyses for faecal streptococci were carried out systematically by the Italian authorities, revealing that 93% of bathing areas were respecting standards for which only a guide value is laid down in the Directive.

As already mentioned in the reports on the previous bathing seasons, the main difficulties as regards the physicochemical parameters recorded concerned colour and transparency. These problems affected 2 and 3% of the areas inspected respectively.

B — Freshwater bathing areas

The number of freshwater bathing areas monitored increased slightly compared with 1993.

The results relate to 11 water courses for which 49 sampling points have been identified. The other sampling points (630), which in fact constitute the majority of freshwater bathing areas, are on lakes.

Table 2 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Italy — Freshwater	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	611	52	620	82	615	55	667	62
Faecal coliforms	611	58	620	95	615	52	670	53
Faecal streptococci ¹	613	95	622	104	665	149	679	107
Salmonella	238	31	210	36	222	46	207	54
Enteroviruses	2	0	1	0	1	0	4	0
Physicochemical								
pH	613	108	622	88	665	115	679	144
Colour	611	13	620	28	615	8	668	21
Mineral oils	611	0	620	0	624	0	672	0
Surface-active substances	611	0	620	0	624	0	672	0
Phenols	611	0	620	0	624	0	672	0
Transparency	611	49	620	23	620	42	668	36
Dissolved oxygen ¹	613	239	622	284	665	267	679	300
Floating materials ¹	0	—	0	—	0	—	0	—
¹ Guide value only.								

Of the 667 points sampled at the frequency required, 88% complied with the mandatory values set for total and faecal coliforms. This is equivalent to 87% of all the 679 identified bathing areas.

On the other hand, for the 1994 bathing season, 64% of the monitoring points complied with the guide values for total coliforms and faecal coliforms. In addition, the presence of salmonella was detected at 26% of the bathing areas monitored for that parameter. Italy saw no need to monitor for enteroviruses.

Analyses for faecal streptococci were carried out systematically by the Italian authorities: 84% of bathing areas complied with the standard laid down by the Directive, which is a guide value only.

The microbiological parameters are virtually the only limiting factors for river-water quality, whereas in lakes, pH levels and the dissolved oxygen content pose additional problems.

Dissolved oxygen was monitored at all identified sampling points. The prescribed standard was exceeded in many cases (44%), with the risk of eutrophication of the waters.

2. General information

Public information

The Ministry of Health publishes a detailed annual report on bathing water quality. This is supplemented by a number of maps showing the state of the waters along the Italian coastline and the state of inland waters.

Moreover, since 1991, the information obtained from the monitoring programme is shown in the teletext pages concerning prohibition of bathing. This information is contained in a year-book updated at regular intervals. It is subdivided into regions, provinces and communes. Moreover, it mentions the beaches where bathing is not allowed (pollution, military defences, harbour installations, marine reserves, etc.).

Improvement schemes

The improvement schemes fall within the competence of the Ministry of Environment (General Directorate, Service of water control, waste discipline, soil conservation and pollution prevention) having its head office in Rome.

Any enquiry should be made directly to this Directorate.

3. Information summary

Maps 10 and 11 show the results for the 1994 bathing season for the north and the south of the country respectively.

They indicate for each district the compliance of the bathing areas with the mandatory (I) values laid down in the Directive for total and faecal coliforms. The method of analysis used for these two parameters was membrane filtration with subculture on an appropriate medium. There was no confirmation test.

Figures 1 and 2 show the changes in the compliance of bathing water as regards the first two microbiological parameters since 1991.

Table 3 — Summary

(Compliance of bathing areas with the standards for microbiological parameters — total and faecal coliforms — 1994 bathing season.)

Italy — 1994	Sea water	Freshwater
Number of sampling points	4 543	679
Number of points not sampled	0	0
Number of points insufficiently sampled	384	12
Number of points complying with mandatory (I) values	3 927	590
Number of points complying with guide (G) values	3 678	435
Number of points where bathing was prohibited	0	0
Average sampling frequency	10.7	11.8

Table 4 — Results for 1991 to 1994

Total: total number of sampling points;

C(I) %: percentage of points complying with the mandatory (I) values;

C(G) %: percentage of points complying with the guide (G) values;

I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

Italy	Total	C(I) (%)	C(G) (%)	I (%)
Sea water				
1991	3 824	90.5	83.8	2.0
1992	4 033	91.5	85.4	0.8
1993	4 288	87.6	82.0	6.7
1994	4 543	86.4	81.0	8.5
Freshwater				
1991	613	87.3	64.6	0.3
1992	622	79.4	58.2	0.3
1993	665	80.9	58.2	8.1
1994	679	86.9	64.1	1.8

4. Conclusion

Bathing waters in Italy are generally of good quality. However, there was a slight decrease in the quality of sea water, together with an increase in the number of bathing areas insufficiently sampled.

On the other hand, for freshwater bathing areas, the improvement recorded over the last three years brings standards back to those of 1991. However, the high percentage of sampling points which did not comply with the dissolved oxygen standard seems to indicate eutrophication of inland waters.

Figure 1 — Italy — Results for sea water

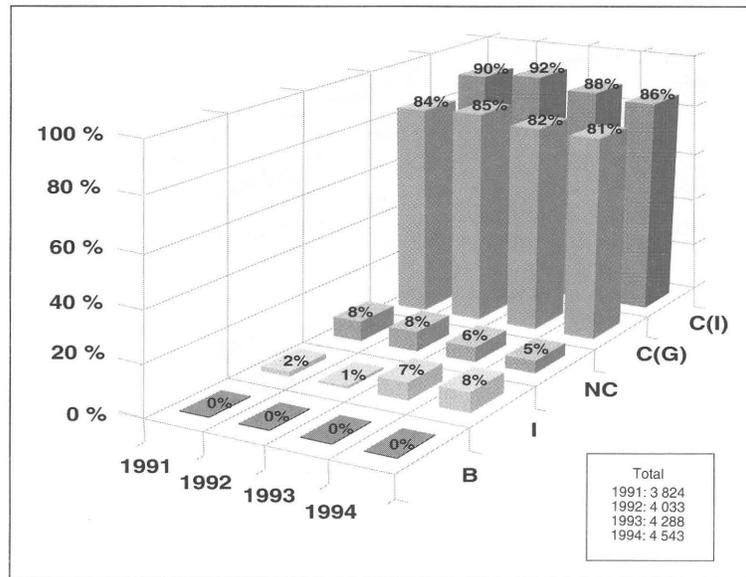
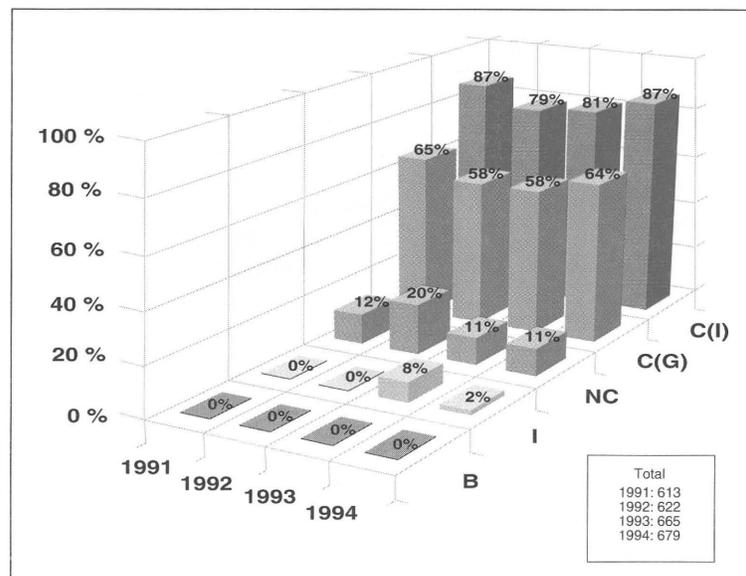


Figure 2 — Italy — Results for freshwater



Total: total number of sampling points;
 C(I): percentage of points complying with the mandatory (I) values;
 C(G): percentage of points complying with the guide (G) values;
 NC: percentage of points not complying with the mandatory (I) values;
 I: percentage of points not sampled or insufficiently sampled;
 B: percentage of points where bathing is prohibited.

The percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

Luxembourg

Luxembourg provided a report compiled by the Ministry of the Environment.

Under the Grand Ducal Regulation of 17 May 1979 concerning bathing water quality, the bathing season starts on 15 May and ends on 31 August.

Consequently, a minimum of eight samples is required, although this may be reduced to five where the water quality has complied with the mandatory values for the previous two years.

The weather during the 1994 bathing season was good with very high temperatures, so bathing areas attracted a large number of bathers.

1. Results

The results were assessed on the basis of mandatory values laid down in the Directive, which are the same as the limit values set in Luxembourg legislation, except for the following two parameters, for which Luxembourg legislation lays down the following mandatory values:

faecal streptococci: 1 000/100 ml;

tarry residues: absence.

Directive 76/160/EEC sets only guide values for these parameters and for dissolved oxygen.

Freshwater bathing areas

Because of the geographical location of the country, all its bathing areas are inland: of these, 11 are in lakes while nine others are in rivers.

Of the 20 bathing areas sampled during the 1994 season, 17 complied with the mandatory limits set for total and faecal coliforms. Bathing was again prohibited at the three areas which failed to comply, all along the Lower Sûre, which have been subject to a bathing ban since 1989.

Table 1 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Luxembourg — Freshwater	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	14	4	15	0	16	0	17	0
Faecal coliforms	14	4	15	0	16	0	17	0
Faecal streptococci ¹	14	6	9	4	10	5	11	6
Salmonella	0	—	0	—	0	—	0	—
Enteroviruses	0	—	0	—	0	—	0	—
Physicochemical								
pH	14	0	15	0	16	0	17	0
Colour	14	0	15	0	16	0	17	0
Mineral oils	14	0	15	0	16	0	17	0
Surface-active substances	14	0	15	0	16	0	17	0
Phenols	14	0	15	0	16	0	17	0
Transparency	14	0	15	3	13	0	14	0
Dissolved oxygen ¹	14	0	15	0	16	0	17	0
Floating materials ¹	14	0	15	0	16	0	17	0
¹ Guide value only.								

Under the laws in force, the competent ministers prohibit bathing as soon as the water falls below the limit values laid down in the Annex to the legislation.

By contrast, bathing water quality in the areas complying with the mandatory values is generally very high, with 11 of these areas (65%) also complying with the guide values for total and faecal coliforms. Luxembourg saw no need to monitor for salmonella and enteroviruses.

As regards the physicochemical parameters, the Luxembourg authorities analysed the following parameters in addition to those for which a mandatory value is set in the Directive: dissolved oxygen (12) and ammonia (14). The limit values were not exceeded.

2. General information

Public information

Article 9 of the Grand Ducal Regulation specifies that the public should be informed of the results of bathing water quality controls. This information is posted in the local town halls and at the bathing areas concerned.

There are severe penalties for failure to display visible signs at areas where bathing is prohibited.

Improvement schemes

The improvement programme drawn up by the Luxembourg authorities provides for the construction of several sewage-treatment plants and other appropriate measures.

The Born-Moersdorf project was completed in 1993 and work on the Rosport-Ralingen project should start in 1996. Work on connecting the Dillingen camping sites to the Echternach treatment plant was delayed because of technical problems.

The enlargement and modernization of the Echternach plant will result in a marked improvement in the bacteriological quality of bathing water in this area.

3. Information summary

Map 1 shows the results for the 1994 bathing season in Luxembourg.

It indicates for each district the compliance of the bathing areas with the mandatory (I) values laid down in the Directive for total and faecal coliforms.

The method of analysis used was membrane filtration with subculture on an appropriate medium. Analysis was not followed by a confirmation test.

Figure 1 shows changes in compliance of bathing water as regards the two first microbiological parameters since 1991.

Table 2 — Summary

(Compliance of bathing areas with the standards for microbiological parameters — total and faecal coliforms — 1994 bathing season.)

Luxembourg — 1994	Freshwater
Number of sampling points	20
Number of points not sampled	0
Number of points insufficiently sampled	0
Number of points complying with mandatory (I) values	17
Number of points complying with guide (G) values	11
Number of points where bathing was prohibited	3
Average sampling frequency	6.5

Table 3 — Results for 1991 to 1994

Total: total number of sampling points;

C(I) %: percentage of points complying with the mandatory (I) values;

C(G) %: percentage of points complying with the guide (G) values;

I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

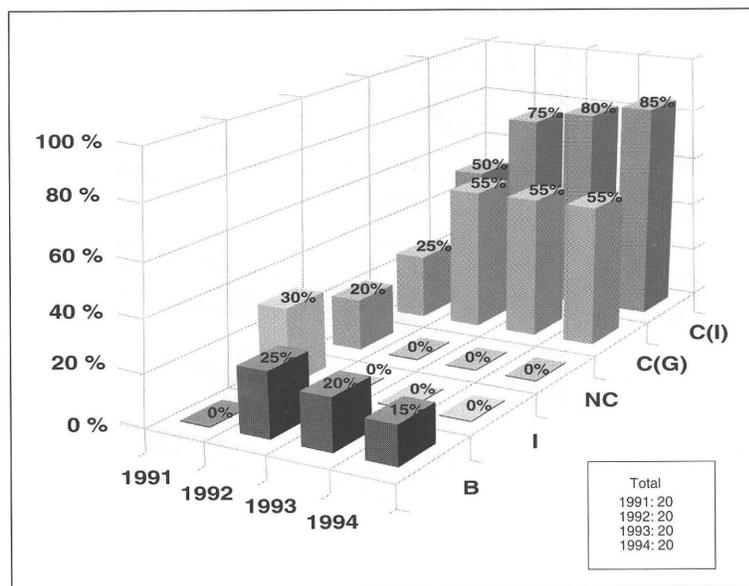
Luxembourg	Total	C(I) (%)	C(G) (%)	I (%)
Freshwater				
1991	20	50.0	25.0	30.0
1992	20	75.0	55.0	0.0
1993	20	80.0	55.0	0.0
1994	20	85.0	55.0	0.0

4. Conclusion

Bathing water quality has been improving for several years. Many areas comply with the requirements of the Directive.

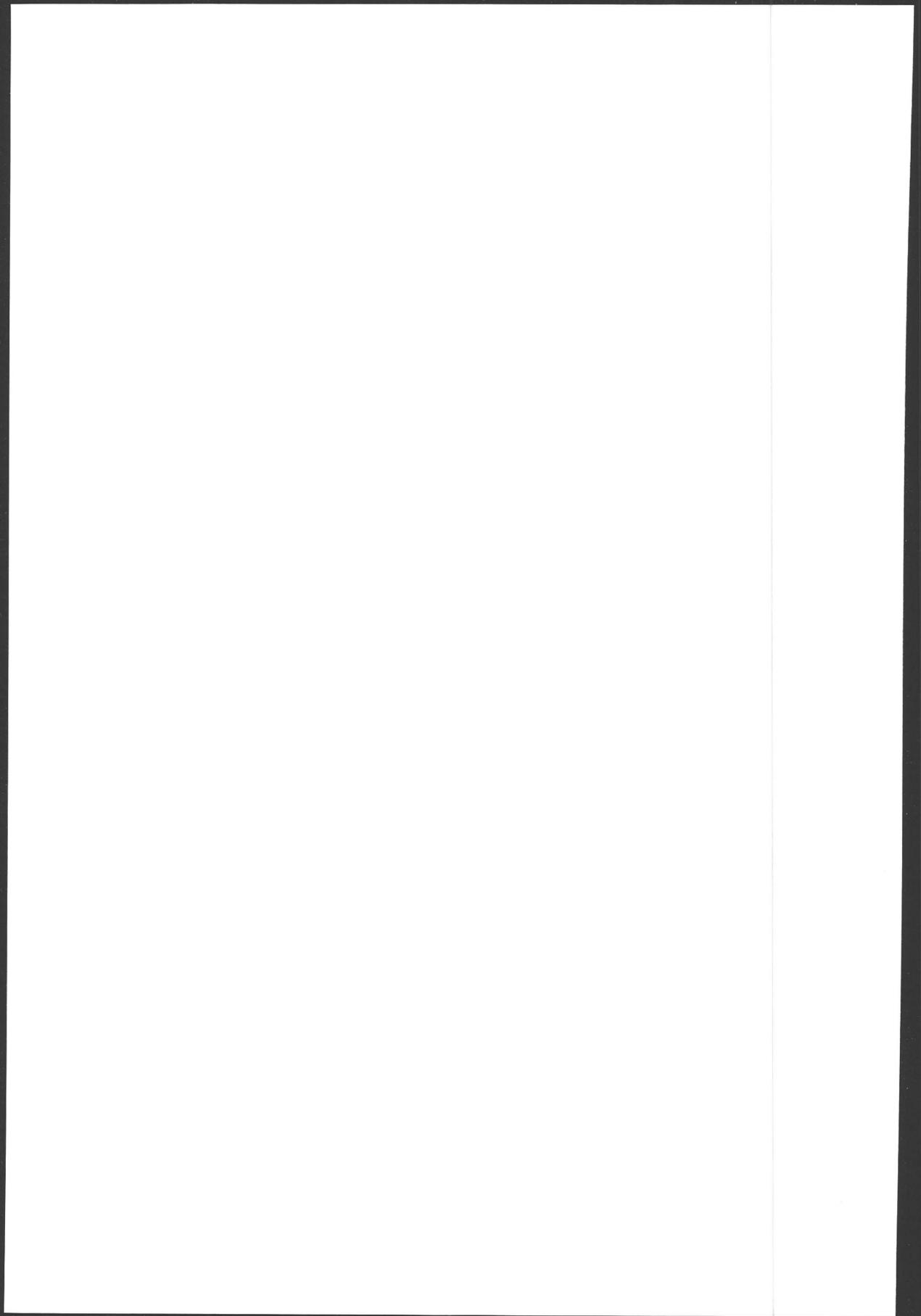
According to the Grand Ducal authorities, improvement schemes over the next few years should solve the permanent pollution problems, particularly in the Lower Sûre.

Figure 1 — Luxembourg — Results for freshwater



Total: total number of sampling points;
 C(I): percentage of points complying with the mandatory (I) values;
 C(G): percentage of points complying with the guide (G) values;
 NC: percentage of points not complying with the mandatory (I) values;
 I: percentage of points not sampled or insufficiently sampled;
 B: percentage of points where bathing is prohibited.

The percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.



The Netherlands

The Netherlands provided a report prepared by the Ministry of Transport and Public Works.

The bathing season runs from 15 May to 15 September.

The minimum number of samples which must be taken is therefore nine, although this may be reduced to five in bathing areas where water quality has complied with the mandatory standards for the previous two years.

Two separate authorities are responsible for monitoring bathing areas: the State and the regional authorities.

1. Results

In June 1994 Dutch legislation was aligned with Directive 76/160/EEC.

The main changes in Dutch bathing water legislation were:

- to add the total coliforms parameter;
- to start sampling two weeks before the beginning of May, increasing the number of samples to 11;
- to amend limit values for total coliforms in accordance with the Commission's instructions.

These changes were thus introduced in the second half of the bathing season. In 1995, all programmes will comply with the new legislation.

A — *Sea water bathing areas*

Only zones located directly on the coast have been included in this category. All other areas, including those where the water is brackish or has a high salt content due to the specific hydrological situation of the Netherlands, have been included with the inland waters.

The monitoring programme concerns 52 bathing areas, of which 11 were not sampled.

Table 1 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

The Netherlands — Sea water	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	0	—	26	0	29	0	18	0
Faecal coliforms	23	0	41	3	39	0	33	0
Faecal streptococci ¹	21	7	38	10	41	5	36	10
Salmonella	1	1	3	0	18	1	7	0
Enteroviruses	0	—	0	—	0	—	0	—
Physicochemical								
pH	26	2	42	3	45	1	41	1
Colour	1	0	27	0	20	0	18	1
Mineral oils	1	0	27	0	20	0	18	0
Surface-active substances	1	0	27	5	20	2	14	1
Phenols	1	0	27	0	6	0	8	0
Transparency ²	15	14	32	31	26	25	7	7
Dissolved oxygen ¹	21	0	23	0	23	0	22	0
Floating materials ¹	1	0	21	0	20	0	18	0
¹ Guide value only. ² See text for explanation.								

NL

All 33 areas sampled at the required frequency complied with the mandatory values set for faecal coliforms. This was equivalent to 63% of all 52 identified bathing areas.

Moreover, 46% of the sampling points met the guide value for faecal coliforms. No salmonella was detected at any of these points.

There was no monitoring for enteroviruses.

Systematic analyses were carried out for faecal streptococci; 51% of the bathing areas complied with the guide value laid down in the Directive.

As regards the physicochemical parameters, there were major problems of transparency which the Dutch authorities attributed to the geographical conditions specific to the North Sea.

B — Freshwater bathing areas

The monitoring programme covers 523 sampling points. Results from 374 sampling points were received. This is a much lower figure than last season because some regions were unable to send in their results before the deadline. Information from some 77 sampling points is missing, which represents 15% of the bathing areas identified in 1993 — which in turn was 91 (16%) down on 1992.

Table 2 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

The Netherlands — Freshwater	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	0	—	0	—	0	—	116	18
Faecal coliforms	528	42	472	54	346	33	281	48
Faecal streptococci ¹	71	7	38	9	25	8	29	4
Salmonella	19	10	24	6	8	2	11	0
Enteroviruses	2	0	0	—	0	—	0	—
Physicochemical								
pH	537	181	527	168	425	103	380	139
Colour	403	198	346	168	217	88	115	2
Mineral oils	327	52	229	20	199	8	120	3
Surface-active substances	326	56	255	46	194	11	159	18
Phenols	419	131	389	92	268	86	205	4
Transparency	538	433	499	413	258	192	195	162
Dissolved oxygen ¹	253	0	241	0	206	0	196	0
Floating materials ¹	365	84	271	44	228	20	165	15
¹ Guide value only.								

Of the areas sampled at the required frequency (281), 83% met the mandatory value set for faecal coliforms. This was equivalent to 45% of all the 523 identified bathing areas.

For the 1994 bathing season, 24% of the sampling points complied with the guide value for faecal coliforms. The Netherlands saw no need for intensive monitoring of salmonella and enteroviruses because there was no deterioration of the bathing water quality and their presence was not expected.

As a consequence, there is no intensive monitoring programme for these two parameters.

The Dutch authorities carried out tests for faecal streptococci, for which there is only a guide value, at only a few bathing areas (5.5%). Some of the results recorded in these areas did not comply with the guide value.

As regards the physicochemical parameters, the limit values were frequently exceeded. These phenomena were due, either to the geographical conditions specific to the Netherlands, or to eutrophication phenomena.

Many bathing areas were temporarily closed and bathing was advised against. In most cases this was due to algae growth. In some cases health problems were reported, whereas in other cases the physical appearance of the bathing water was the main problem.

Given the high water temperatures, these problems were chiefly caused by:

- the large number of bathers, which tends to mean a higher level of waste in the water;

- the growth of plants, especially blue algae, which started earlier in the year than usual and was more abundant.

NL

As a result of these problems research was carried out, concentrating on:

- the effect of large numbers of bathers on water quality (the bather-bather contact effect);

- the toxicological effect of blue algae on ecosystems and human health.

2. General information

Public information

The means of informing the public can vary from one province to another. In general, leaflets with the results and the assessment of water quality are provided by tourist offices and provincial administrations.

For popular bathing areas, notes are displayed at bathing places.

In some cases, the most recent results are published in the local press or are available by a special telephone service.

Improvement schemes

General guidelines on schemes to improve bathing areas are included in the documents setting out national policy which are issued every four to seven years.

In these documents, it is pointed out that the quality of water has to be assessed before identifying a bathing area and allowing bathing.

3. Information summary

NL

Map 12 shows the results for the 1994 bathing season.

It indicates for each district the compliance of bathing areas with the mandatory (I) value for faecal coliforms.

The methods used to analyse this parameter are those specified in the Directive, namely depending on the laboratory, either membrane filtration with subculture on an appropriate medium with confirmation of colonies, or fermentation in multiple tubes on two consecutive mediums with confirmation.

Figures 1 and 2 show changes in compliance of bathing water as regards the second microbiological parameter since 1991.

Table 3 — Summary

(Compliance of bathing areas with the standard for the microbiological parameter — faecal coliforms — 1994 bathing season.)

The Netherlands — 1994	Sea water	Freshwater
Number of sampling points	52	523
Number of points not sampled	11	149
Number of points insufficiently sampled	8	93
Number of points complying with mandatory (I) values	33	233
Number of points complying with guide (G) values	24	127
Number of points where bathing was prohibited	0	0
Average sampling frequency	8.0	9.5

NL

Table 4 — Results for 1991 to 1994

Total: total number of sampling points;

C(I) %: percentage of points complying with the mandatory (I) values;

C(G) %: percentage of points complying with the guide (G) values;

I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'faecal coliforms' only at all the identified sampling points.

The Netherlands	Total	C(I) (%)	C(G) (%)	I (%)
Sea water				
1991	33	69.7	45.5	30.3
1992	44	86.4	72.7	6.8
1993	49	79.6	63.3	20.4
1994	52	63.5	46.2	36.5
Freshwater				
1991	582	83.5	47.8	9.3
1992	556	75.2	38.1	15.1
1993	504	62.1	38.7	31.3
1994	523	44.6	24.3	46.3

4. Conclusion

The sea water bathing areas are generally of high quality when only the areas sampled sufficiently are taken into consideration. However, this conclusion cannot be applied to all identified bathing areas because a large amount of data is missing.

For the inland areas, it is difficult to assess water quality compared with previous seasons, because a large amount of data (28%) is missing and a high percentage of bathing areas (18%) are insufficiently sampled. This means that data are insufficient in 46% of cases. Nevertheless, based on comparable data, the bathing quality in the inland water in 1994 is slightly worse than in 1993. The high temperatures registered during the 1994 summer are closely related to this situation.

The Member State is requested to take all appropriate measures in order to reduce the high percentage of insufficiently sampled points.

NL

Figure 1 — The Netherlands — Results for sea water

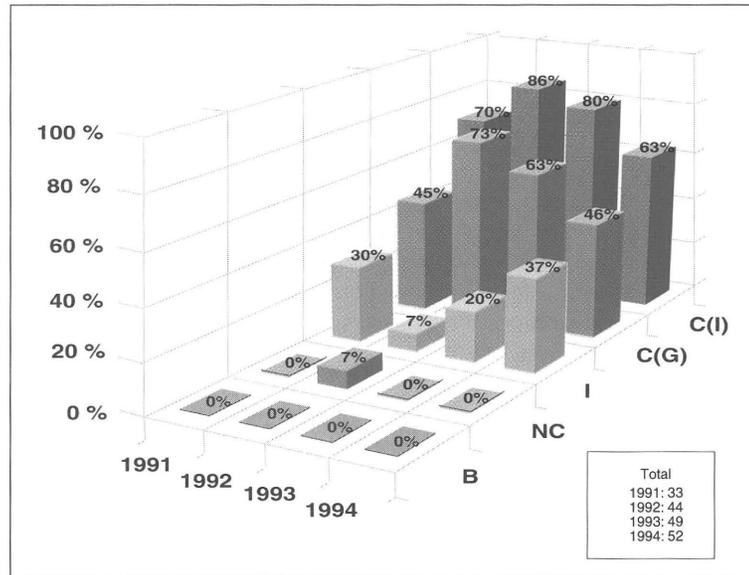
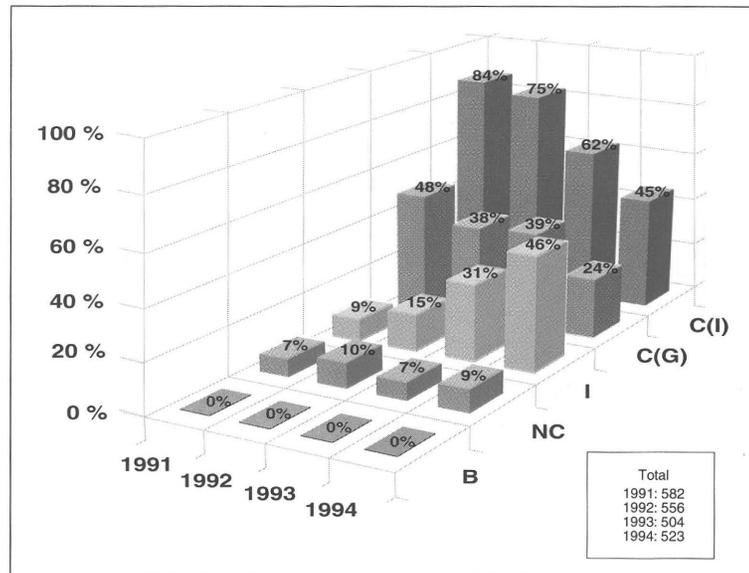


Figure 2 — The Netherlands — Results for freshwater



Total: total number of sampling points;
 C(I): percentage of points complying with the mandatory (I) values;
 C(G): percentage of points complying with the guide (G) values;
 NC: percentage of points not complying with the mandatory (I) values;
 I: percentage of points not sampled or insufficiently sampled;
 B: percentage of points where bathing is prohibited.

The percentages are given for 'faecal coliforms' at all the identified sampling points.

Portugal

Portugal provided a report compiled by the Ministry of the Environment and Natural Resources and the Ministry of Health on the basis of data supplied by the competent national authorities.

At all bathing areas, the bathing season runs from 1 June to 30 September. Nine samples must therefore be taken, although this may be reduced to five where the water has complied with the mandatory values for the previous two years.

1. Results

The results were assessed on the basis of the mandatory values laid down in the Directive, which are the same as the limit values laid down in Portuguese legislation.

The Directive sets only guide values for faecal streptococci, dissolved oxygen and floating materials. The results for these parameters were therefore assessed on the basis of these guide values.

Sampling is generally carried out at a representative point in the bathing area. In certain cases, however, where more intensive monitoring is required, there are several sampling points in the same bathing area. In such cases, the Portuguese authorities send the Commission the worst results for the bathing area concerned.

Portuguese legislation assigns bathing water three categories:

Good: the waters comply with the guide values in the Directive for total and faecal coliforms;

Acceptable: the waters comply with the mandatory values in the Directive for these parameters;

Bad: the waters fail to comply with the mandatory values in the Directive for these parameters.

When salmonella is detected once, the classification of the bathing water goes from 'good' to 'acceptable' or remains 'acceptable' and when it is detected twice or more often, the classification goes from good or acceptable to bad.

A — Sea water bathing areas

The monitoring programme covered 315 sampling points in coastal bathing areas. However, some sampling points, monitored in previous years have been withdrawn following reorganization of the monitoring programme. The Portuguese authorities decided that some areas where there is little, or infrequent, bathing would no longer be considered bathing areas. On the other hand, they did include other new areas in the monitoring programme areas. In 1994 eight sampling points were affected by these changes.

Table 1 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Portugal — Sea water	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	156	2	208	13	280	17	289	16
Faecal coliforms	156	17	208	16	278	24	288	24
Faecal streptococci ¹	0	—	210	18	282	34	303	27
Salmonella	0	—	0	—	218	0	247	3
Enteroviruses	0	—	0	—	0	—	0	—
Physicochemical								
pH	0	—	0	—	124	2	237	2
Colour	0	—	0	—	232	51	232	132
Mineral oils	156	6	208	5	268	49	270	15
Surface-active substances	155	16	208	41	259	55	265	33
Phenols	155	1	208	4	260	6	262	2
Transparency	0	—	0	—	14	3	70	7
Dissolved oxygen ¹	0	—	0	—	36	10	51	0
Floating materials ¹	0	—	0	—	220	18	256	25
¹ Guide value only.								

A total of 91% of the 262 areas sampled at the required frequency complied with the mandatory values set for total and faecal coliforms. This was equivalent to 83% of all 315 identified bathing areas.

For the 1994 bathing season, 74% of the sampling points complied with the guide values for total and faecal coliforms: a 6% increase on 1993.

The Portuguese authorities systematically carried out faecal streptococci counts. The Directive lays down a guide value only, which was met by 88% of bathing areas.

Monitoring for salmonella has been carried out on a large scale since last year. A total of 78% of bathing areas were monitored compared with 70% in 1993. The presence of salmonella was detected in only three bathing areas. Portugal saw no need to monitor for enteroviruses.

The Portuguese authorities monitored for dissolved oxygen in some bathing areas, in addition to those physicochemical parameters for which the Directive lays down a guide value only.

No relation was shown between this additional parameter and non-compliance with the limit values for the other parameters.

As regards the other physicochemical parameters, the main problem was with regard to colour, which affected 57% of the bathing areas monitored. In many cases it was identified as being of natural origin.

B — *Freshwater bathing areas*

This year, for the second time, the bathing water monitoring programme included inland bathing areas. However, the number of areas monitored was limited, as bathing is less common here than in coastal waters.

Results were notified for 20 (83%) of the 24 identified bathing areas.

Because of severe drought, systematic sampling of some rivers was not possible. In addition, four sampling points were withdrawn from the monitoring programme as the level of bathing had declined.

A total of 89% of the 19 areas sampled at the required frequency complied with the mandatory values set for total and faecal coliforms. This was equivalent to 71% of all 24 identified bathing areas.

Table 2 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

Portugal — Freshwater	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	—	—	—	—	8	0	19	0
Faecal coliforms	—	—	—	—	8	1	19	2
Faecal streptococci ¹	—	—	—	—	24	3	20	3
Salmonella	—	—	—	—	23	0	19	5
Enteroviruses	—	—	—	—	0	—	0	—
Physicochemical								
pH	—	—	—	—	14	0	12	5
Colour	—	—	—	—	7	5	18	6
Mineral oils	—	—	—	—	8	2	19	1
Surface-active substances	—	—	—	—	7	2	11	2
Phenols	—	—	—	—	7	0	17	0
Transparency	—	—	—	—	0	—	1	0
Dissolved oxygen ¹	—	—	—	—	0	—	0	—
Floating materials ¹	—	—	—	—	7	3	17	2
¹ Guide value only.								

P For the 1994 bathing season, 37% of the sampling points complied with the guide values for total and faecal coliforms. This percentage is 29 of all the identified sampling points.

With regard to faecal streptococci, 85% of the sampling points complied with the guide values set by the Directive.

The Portuguese authorities systematically monitored for salmonella, which was detected in five bathing areas. Portugal saw no need to monitor for enteroviruses.

As regards the physicochemical parameters, the limit values for pH and colour were exceeded in many areas. In many cases it was identified as being of natural origin. Few sampling points failed to comply with the limit values for mineral oils, surface-active substances and floating materials.

2. General information

Public information

Since 1989, the Portuguese authorities have published a bathing water quality map to keep the public informed. This is displayed and distributed at bathing areas, medical centres, tourist offices and ports. The results are also published in the media.

Improvement schemes

Portuguese bathing waters are generally of good quality, although, of course, some areas are affected by pollution from industrial or densely populated areas.

One example is the town of Vita Nova de Goia, in the Porto region. The quality of the bathing water is seriously affected by the untreated industrial and domestic effluent. The town authorities have therefore launched a coastal improvement scheme, Bacia do ocean Atlântico, financed from a fund-raising system started at the end of the 1980s and Community funds, which should be finished by 1997.

The basic plan is to construct a sewer to carry waste to a sewage-treatment plant along the coast. The treated sewage will then be discharged via an undersea pipeline (already built) near the Madalena beach.

The total cost of the improvement scheme is in the order of ECU 3 090 000.

3. Information summary

Map 6 shows the results for the 1994 bathing season in Portugal.

It indicates for each district compliance of the bathing areas with the mandatory (I) values laid down in the Directive for total and faecal coliforms.

The method of analysis used for these two parameters was lactose fermentation in multiple tubes followed by a confirmation test.

Figures 1 and 2 show changes in compliance of bathing water as regards the first two microbiological parameters since 1991.

Table 3 — Summary

(Compliance of bathing areas with the standards for microbiological parameters — total and faecal coliforms — 1994 bathing season.)

Portugal — 1994	Sea water	Freshwater
Number of sampling points	315	24
Number of points not sampled	11	4
Number of points insufficiently sampled	16	1
Number of points complying with mandatory (I) values	262	17
Number of points complying with guide (G) values	234	7
Number of points where bathing was prohibited	0	0
Average sampling frequency	9.7	7.9

Table 4 — Results for 1991 to 1994

Total: total number of sampling points;

C(I) %: percentage of points complying with the mandatory (I) values;

C(G) %: percentage of points complying with the guide (G) values;

I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

Portugal	Total	C(I) (%)	C(G) (%)	I (%)
Sea water				
1991	160	86.9	76.3	2.5
1992	226	83.2	75.2	8.0
1993	312	80.8	67.9	10.9
1994	315	83.2	74.3	8.6
Freshwater				
1991	—	—	—	—
1992	—	—	—	—
1993	24	29.2	4.2	66.7
1994	24	70.8	29.2	20.8

4. Conclusion

The results reported in 1994 confirm the high quality of bathing water in Portugal.

Monitoring of bathing areas has increased substantially over the last four years.

The compliance rate of sea water and inland bathing areas has increased since 1993. The quality of sea water has improved significantly, in terms both of compliance rates and sampling frequency.

Water quality is now much higher as a result of the improvement scheme on the Estoril coast. Additional efforts will be required to reduce the number of insufficiently sampled areas.

Figure 1 — Portugal — Results for sea water

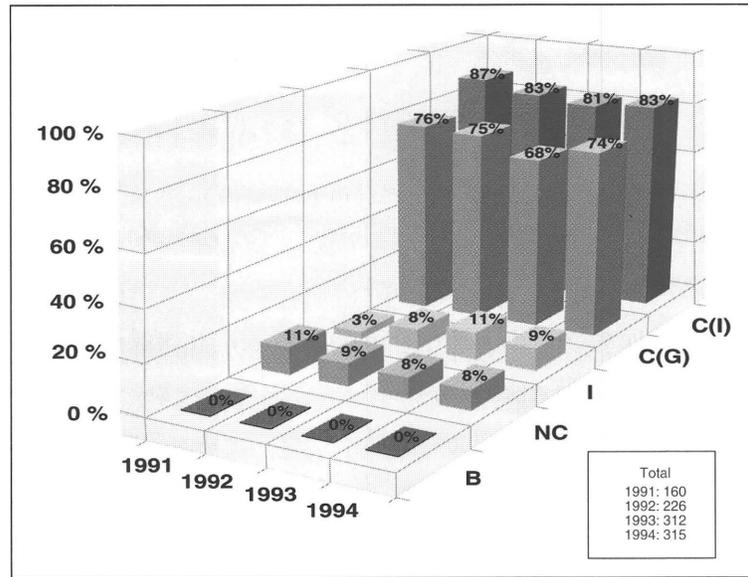
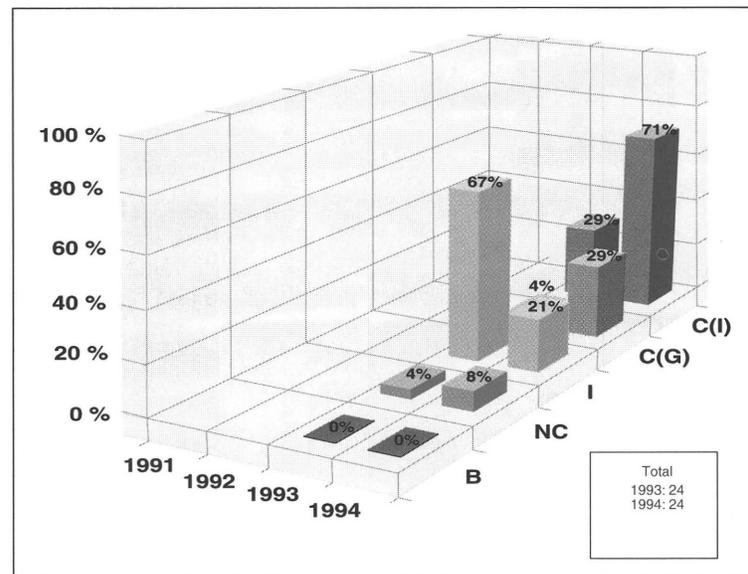


Figure 2 — Portugal — Results for freshwater



Total: total number of sampling points;
 C(I): percentage of points complying with the mandatory (I) values;
 C(G): percentage of points complying with the guide (G) values;
 NC: percentage of points not complying with the mandatory (I) values;
 I: percentage of points not sampled or insufficiently sampled;
 B: percentage of points where bathing is prohibited.

The percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

United Kingdom

For the 1994 bathing season, the United Kingdom provided a report prepared by the competent national authorities.

Generally, the bathing season runs from 15 May to 30 September in England and Wales and from 1 June to 15 September in Scotland and Northern Ireland. Some variations due to geographical factors and climate are nevertheless possible.

Therefore, the minimum number of samples which must be taken is 10 and 8 respectively. However, this may be reduced to six and five respectively in bathing areas where the water quality has complied with the mandatory values for the previous two years. Nevertheless, the results for most bathing areas are based on a minimum of 20 samples taken each week throughout the bathing season.

In Gibraltar, the bathing season runs from 15 April to 30 October. Although a minimum of 14 samples are required, 26 samples were taken on average.

1. Results

The results were assessed on the basis of the mandatory values laid down in the Directive. These, in any case, correspond to the limit values laid down in United Kingdom legislation. As the Directive sets only a guide value for faecal streptococci, the results for this parameter were assessed on the basis of this guide value.

UK

A — *Sea water bathing areas*

During the 1994 bathing season, the monitoring programme included 458 bathing areas. However, as there was no access to one bathing area, the results cover only 457 areas.

In addition, the UK authorities have also notified the results of analyses conducted at six bathing areas in Gibraltar.

Table 1 — Compliance rate for the parameters measured or assessed

(T = number of areas sampled at the required frequency; NC = number of areas not complying.)

United Kingdom — Sea water	1991		1992		1993		1994	
	T	NC	T	NC	T	NC	T	NC
Microbiological								
Total coliforms	453	60	455	52	457	42	457	25
Faecal coliforms	453	107	455	95	457	91	457	81
Faecal streptococci ¹	0	—	432	255	440	256	457	250
Salmonella	429	67	432	71	440	83	430	56
Enteroviruses	395	181	307	209	199	104	191	149
Physicochemical								
pH	427	0	326	1	437	5	418	0
Colour	448	111	454	0	457	0	457	0
Mineral oils	448	9	448	0	457	0	457	0
Surface-active substances	448	81	448	2	457	1	457	0
Phenols	448	1	448	0	457	0	457	0
Transparency	301	6	171	4	391	6	456	6
Dissolved oxygen ¹	0	—	0	—	0	—	0	—
Floating materials ¹	0	—	0	—	0	—	0	—
¹ Guide value only.								

In the 1994 bathing season, 82% of the sampling points complied with the mandatory values set for total and faecal coliforms.

For the 1994 bathing season, 154 (34%) of the bathing areas met the guide values for total and faecal coliforms. Of these sampling points, 146 were also free of salmonella and enteroviruses.

UK

Tests for salmonella were carried out at virtually every sampling point. Enteroviruses were checked at every bathing area which failed to meet the coliform standard laid down in the Directive in 1993, and in other areas 149 out of 191 (78%) of the bathing areas tested for this parameter showed evidence of the presence of enteroviruses.

The UK authorities systematically monitored for faecal streptococci, for which the Annex to the Directive sets only a guide value. In all, 45% of bathing areas complied with this standard.

The physicochemical parameters were monitored by general visual and olfactory inspections. In England and Wales, if non-compliance is suspected, samples are subjected to analysis by the methods described in the Directive and reported as failures if the limit value is not met.

In the case of transparency, waivers were granted to most of the bathing areas, in accordance with Article 8 of the Directive, because of the influence of tides and waves. These waivers were also used in some cases for the colour parameter.

The derogation allowed by Article 5(2) of the Directive was not involved this year.

The six bathing areas identified in Gibraltar complied with the guide values for all microbiological and physicochemical tested parameters.

B — *Freshwater bathing areas*

The United Kingdom has not, as yet, identified any freshwater bathing areas.

2. General information

Public information

To keep the public informed about bathing water quality, the latest results of coliform analyses continue to be displayed at every beach throughout the United Kingdom.

Improvement schemes

Priority continues to be given to improving as soon as practicable the quality of bathing water which does not comply with the standards set by the Directive.

The UKL 2 billion improvement programme should be completed by the end of 1995 for most beaches and later (1996 or even 1997) for the others. By June 1994 improvement schemes had been completed or brought into operation for 58 bathing areas, i.e. 18 more than in 1993.

Most of the outstanding problems will be tackled by this programme.

The logo consists of the letters 'UK' in a bold, sans-serif font, centered within a light grey rectangular box.

Scientific research

The final report on the programme of research on the health effects of sea-bathing financed by the United Kingdom and published in January 1994 recommends further study to refine the interpretation of the research.

The competent authorities intend to carry out further analyses in the near future to help in understanding the minor health risks associated with bathing in sewage-contaminated sea water.

Revision of the Directive

The United Kingdom authorities have been giving careful consideration to the Commission's proposal for revision of the Directive. They are currently undertaking a study of the cost of compliance, a statistical study of alternative compliance assessment methods and an examination of the proposed microbiological parameters.

Parliament is considering the proposal in detail.

In December 1994 and March 1995, the House of Lords Select Committee on the European Communities published reports on the proposal.

The United Kingdom now has a computer program for carrying out analyses of bathing water and simulation studies. Given the massive volume of data on most of the parameters specified in the Annex to the current Directive, it is possible to calculate quickly and accurately the likely impact of proposed changes to current standards and rules for assessing compliance.

UK

3. Information summary

Map 9 shows the results for the 1994 bathing season in the United Kingdom. It also includes an inset showing Gibraltar. Since Gibraltar is a special-status European territory, its results are shown separately.

The map indicates for each district the compliance of the bathing areas with the mandatory (I) values laid down in the Directive for total and faecal coliforms.

The method of analysis used for these two parameters was membrane filtration and culture on an appropriate medium. Confirmation tests were carried out.

Figure 1 shows changes in compliance of bathing water as regards the first two microbiological parameters since 1991.

Table 2 — Summary

(Compliance of bathing areas with the standards for microbiological parameters — total and faecal coliforms — 1994 bathing season.)

United Kingdom — 1994	Sea water
Number of sampling points	457
Number of points not sampled	0
Number of points with inadequate sampling frequency	0
Number of points complying with mandatory (I) values	376
Number of points complying with guide (G) values	154
Number of points where bathing was prohibited	0
Average sampling frequency	20.1

Gibraltar

UK

Table 3 — Summary

(Compliance of bathing areas with the standards for microbiological parameters — total and faecal coliforms — 1994 bathing season)

Gibraltar — 1994	Sea water
Number of sampling points	6
Number of points not sampled	0
Number of points insufficiently sampled	0
Number of points complying with mandatory (I) values	6
Number of points complying with guide (G) values	6
Number of points where bathing was prohibited	0
Average sampling frequency	26.0

Table 4 — Results for 1991 to 1994

Total: total number of sampling points;
C(I) %: percentage of points complying with the mandatory (I) values;
C(G) %: percentage of points complying with the guide (G) values;
I %: percentage of points not sampled or insufficiently sampled.

Percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

United Kingdom — Sea water	Total	C(I) (%)	C(G) (%)	I (%)
1991	453	75.7	26.5	0.0
1992	455	78.7	35.8	0.0
1993	457	79.9	30.6	0.0
1994	457	82.3	33.7	0.0

4. Conclusion

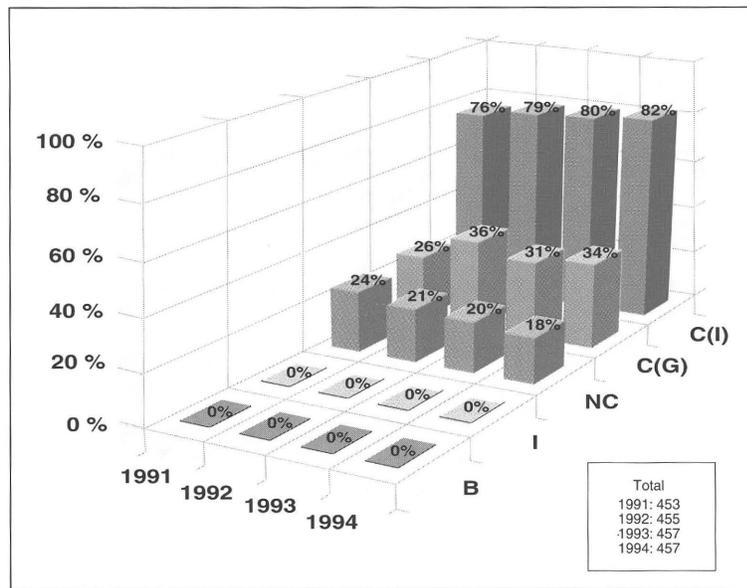
The situation has been improving over the last few years. The proportion of areas identified by the Member State complying with the standards has been rising steadily, and in 1994 reached 82%.

However, the position concerning enteroviruses has deteriorated compared to the 1993 bathing season. The Member State is requested to identify those factors related to the presence of enteroviruses and to take all appropriate measures in order to improve the situation. The United Kingdom is the only Member State operating an extensive and comprehensive enterovirus monitoring programme. Therefore there can be no comparability with data from other Member States.

The United Kingdom's report of September 1994 on progress on the bathing water improvement schemes indicates that the bulk of the schemes to bring the United Kingdom's waters into compliance with the Directive's standards will be completed by around the end of 1995.

UK

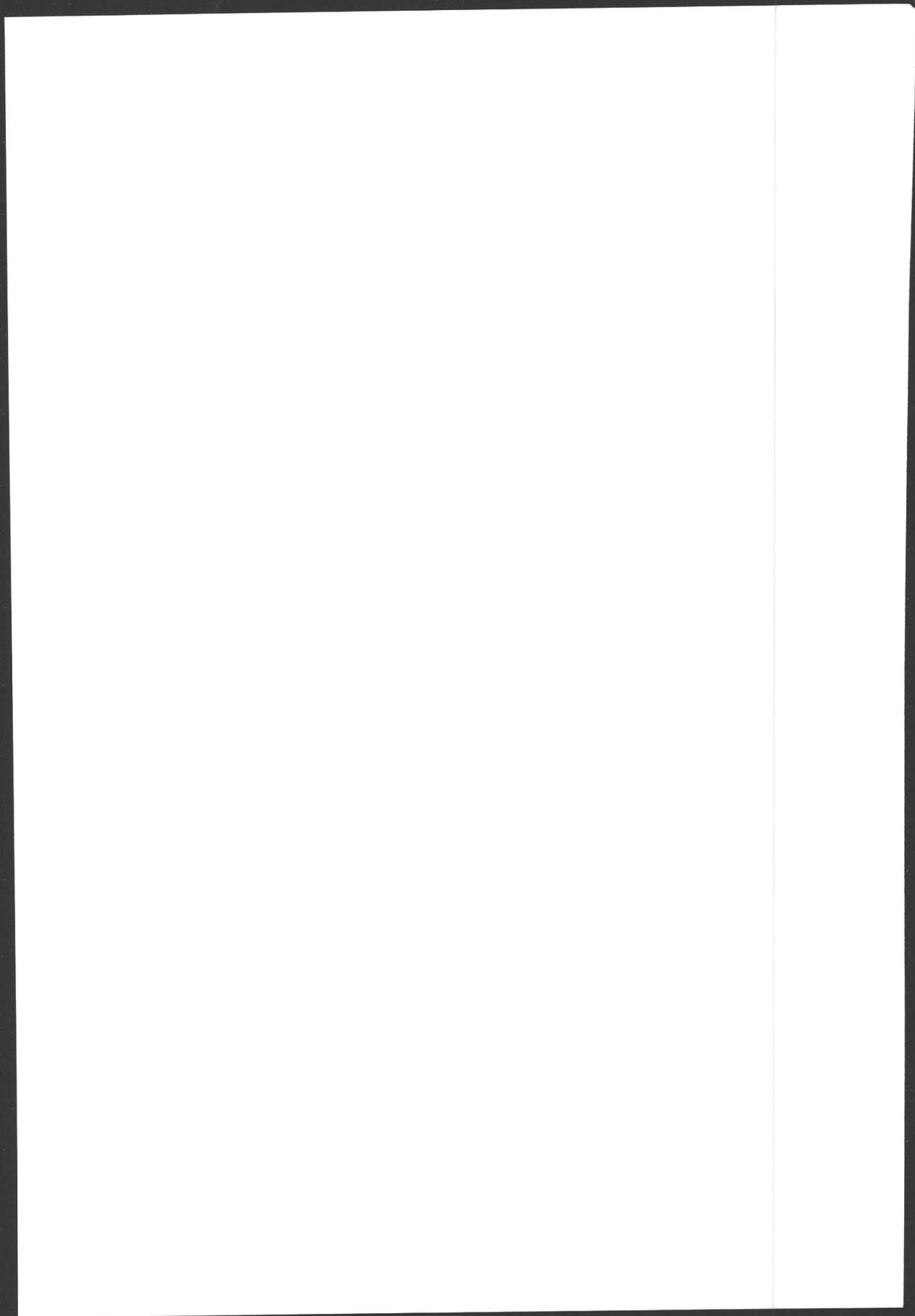
Figure 1 — United Kingdom — Results for sea water



- Total: total number of sampling points;
- C(I): percentage of points complying with the mandatory (I) values;
- C(G): percentage of points complying with the guide (G) values;
- NC: percentage of points not complying with the mandatory (I) values;
- I: percentage of points not sampled or insufficiently sampled;
- B: percentage of points where bathing is prohibited.

The percentages are given for 'total coliforms' and 'faecal coliforms' at all the identified sampling points.

UK



European Commission

EUR 15976 — Quality of bathing water — 1994

Luxembourg: Office for Official Publications of the European Communities

1995 — 113 pp., num. tab., fig. — 16.7 × 23.7 cm

Environment and quality of life series

ISBN 92-827-4046-3

This report contains, for each Member State:

- a summary of the principal parameters for bathing water and the results over the last four years;
- one or two maps showing the microbiological quality of bathing water in each district.