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PROPOSAL FOR A COUNCIL DIRECTIVE RELATING TO POLLUTION OF SEA WATER AND FRESH WATER FOR BATHING (QUALITY OBJECTIVES)

(submitted to the Council by the Commission)

EXPLANATORY MEMORANDUM

1. Introduction

For many years the public authorities have been concerned about the part played by bathing water, which is polluted by sewage water, in the transmission of infectious diseases. This is not merely a matter of national concern, it is also of Community interest. Water pollution, whether of the sea or rivers, frequently has international implications. It may affect the interests of more than one Member State, either because the pollution itself moves across national frontiers or because people from several Member States, especially tourists, may suffer from the effects of such pollution in the localities which they visit or frequent.

It is only recently, as a result of the growing interest shown in environmental questions by public opinion, that it has been admitted that bathing water should in addition satisfy criteria other than those of public health, such as amenities, aesthetic attraction and the improvement of the quality of the environment in general.

The aim of this Directive - which is presented in pursuance of the European Communities' programme of action on the environment - concerns the establishment, in accordance with certain procedures, by the Member States, of a set of numerical values corresponding to parameters laying down the minimum quality required of bathing water. Therapeutic use of water and bathing in swimming pools are excluded from this Directive.

In its declaration of 22 November 1973 on the above-mentioned programme of action, the Council acknowledged that pollution and nuisances should be effectively combated in order to improve the living conditions of the peoples of the Community in accordance with the aims of the Treaty establishing the European Economic Community.

The programme of action states more particularly that the Community action must include the definition of environmental quality objectives and will consist in laying down a set of reference parameters for the various uses and functions of water, and especially for fresh water and sea water for bathing purposes.

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It should be noted that bathing in these two types of water presents general similarities because it concerns direct human contact with water in an area in which bathing is tolerated or authorized. However, the micro-biological and physico-chemical factors differ in such a way that two different sets of values are presented: one for fresh-water bathing and the other for sea-water bathing.

2. EXISTING CONDITIONS AND RULES CONCERNING THE QUALITY OF BATHING WATER IN THE MEMBER STATES

An examination of the legal position in the Member States reveals that no provisions of the same scope and the same degree of technicality as those contained in the draft directive already exist in the national legislation.

In the Netherlands, guiding principles of a general nature for the evaluation of bathing water quality (in lakes and the sea) were laid down in 1952 by an ad hoc committee of the TNO (Organization for Applied Scientific Research). In its report the TNO Committee recommended quality criteria for swimming-pool water and for surface water intended for recreational activities (e.g., swimming, paddling, diving and other activities in which there is direct and prolonged contact with water).

A second report on quality requirements for bathing water (Gezondheidsraad, Interim rapport inzake de eisen, welke met het oog op de gezondheid van de mens aan oppervlaktewater dienen te worden gesteld. Rijswijk, 25 juni 1973) has been prepared by the Netherlands Health Council. This report recommends classification of bathing places in three grades, based on the result of local inspection and chemical and bacteriological water analysis.

In Denmark, the draft law on the Protection of the Environment of 13 June 1973 provides that the Ministry of the Environment may lay down a regulation on hygienic conditions for bathing water and beaches. Chapter 2, Section 4 states the duty to control bathing water on the Municipal Councils.

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In Ireland an Act (Foreshore Act 1933) which provides that no person may leave in the tidal area (i.e. below high-water mark) or throw into the sea adjacent to that area any article, whole or broken, which could cause injury to a person bathing or paddling there.

The prohibition extends to any substance, solid or liquid, which could be injurious to such persons. Without the consent of the Minister of Transport and Power, nobody may dump material on a foreshore or seashore or at any place from which it would be blown, washed, or moved by other natural causes to a seashore.

In Italy, fecal coliform limits only are specified for sea bathing water. This specification is contained in a circular from the Ministry of Health addressed to the Provincial Health Inspectorate (No. 400.5/79 D.A.C. 67 of 1 June 1971).

In the United Kingdom bathing is regulated by the provisions of the Water Act 1973, Chapter 37. This Act provides that each Water Authority shall take any appropriate measure to ensure that the use of the water and the beach is in conformity with recreational use. To this end every water authority must take all equitable and practical measures.

In France, sea-water bathing is governed by a bye-law based on the law of 16 December 1964. This bye-law prohibits the dumping into the sea of material of any kinds which may be harmful to public health, fauna, flora and the development of tourism. As for fresh-water bathing, this has been dealt with in a notification to the Commission (see Section 3.1.).

In view of the legal situation in the member countries and the fact that the Treaty has not provided all the necessary powers to achieve its aims in this field, it is appropriate to invoke together Articles 100 and 235 as the legal basis for the draft directive.

3. COMMENTS ON THE DIRECTIVE

3.1. General Comments

A French draft order setting out, in implementation of the Law of 16 December 1964, tables with the physical, chemical and microbiological characteristics of fresh water for bathing was sent to the Commission in pursuance of the "information agreement" adopted by the representatives of the governments of the Member States meeting within the Council on 5 March 1973. After receiving this document the Commission expressed its intention of proposing a draft Community directive in this field and of gathering together the articles concerning the quality of sea water in bathing places. It convened a group of national experts for the purpose of assisting in the compilation of the technical data required for the preparation of this draft. This group provided information on the legal position in the Member States and drew up detailed lists of the characteristics of bathing waters and of the permissible concentration levels for the various substances.

3.2. Implementation

The directive concerns only authorized or tolerated bathing places. Bathing at unauthorized places is at the bather's own risk.

3.3. Site inspections and local conditions

The importance of a general inspection of the environmental conditions of the bathing place must be stressed. Such an inspection of the upstream conditions in the case of fresh running waters and of environmental conditions in the case of fresh still waters (lakes) or sea water must be scrupulously carried out or repeated in order to establish the geographical and topological data, the volume and nature of all pollutants and potentially pollutant discharges and their effects as a function of their distance from the water under consideration.

Additionally, the risk of accidental pollution which these discharges may cause in the area of the potential hazard must be assessed.

3.4. Sampling and analysis

It is recommended that the greatest attention be devoted to the frequent sampling of the more important parameters revealed by local inspection. Routine sampling must be carried out at regular intervals and its frequency determined according to the importance of the site and the concentration of bathers using it. Special attention should be paid to sites where the concentration of bathers exceeds a mean value of 10,000 persons per linear kilometer of beach and a more intensive sampling and analysis programme is proposed in such cases.

Sampling as above specified is normally carried out at least a fortnight before the bathing season opens and during that season.

3.4.1. The sampling of microbiological parameters

The MPN technique (MPN = Most Probable Number) is generally considered an acceptable method for enumerating coliform bacteria in water. It is obvious, however, that in view of the low accuracy of this method and the usually fluctuating densities of bacteria present in surface water, knowledge of the bacteriological quality of a certain recreational water can only be gained by frequent examinations. The microbiological conditions at a sampling point may vary considerably in time but it has been found that twenty samples, spread over a full recreational season, should be examined as a minimum at the onset.

In subsequent years the frequency of sampling can be somewhat reduced, provided the general situation has remained unchanged, but it should be kept in mind that if less than ten samples are examined it is to be expected that the statistical reliability of the final assessment will be rather low.

The choice of location of sampling points will depend on the local situation. In principle, samples will be taken at places where the density of bathers is highest.

A general rule for the number of sampling points cannot be given; in many instances the capacity of the examining laboratory will be a limiting factor.

In large recreational areas of high population density, the distance between the sampling points should be about two kilometres at the most.

3.4.2. The methods of reference analysis for the parameters in question are set out in Annexes 1 and 2. Laboratories which employ other methods must make sure that the results they obtain are equivalent to those given by the reference methods.

3.5. Regional variations

The hazards to health will be proportional to the time of exposure to the water and they vary greatly according to temperature of the air, and consequently of the water. The directive therefore prescribes for sea water - which is the preferred bathing medium less stringent conditions for those areas where the low prevailing water temperature (less than 20°C) limits the time of bathing, compared with other regions where bathing may continue throughout the day.

3.6. Parameters

The numerical values of the parameters, as set out in Annexes 1 and 2, enable the characteristics of fresh and sea water used for bathing to be defined. The microbiological examinations may be subdivided into three groups according to their importance and the frequency of sampling laid down in Annexes 1 and 2, i.e. fundamental, complementary and occasional tests. All these tests are designed to reveal the presence of amounts of sewage or fecal matter in the water, which are in excess of those permissible.

Prolonged immersion of the whole body is the principal activity that determines the required physical and chemical characteristics of bathing water. However, as has been pointed out in the introduction, general

environmental considerations must also be taken into account in order to have consistency between different quality objectives for the same body of water. For this reason chemical substances which are toxic only through ingestion (and generally a bather involuntarily swallows a small amount of water while swimming) are also included in the Annexes as a pollution index.

The same considerations likewise apply to radioactive emitters contained in water.

The letters used in Annexes 1 and 2 have the following meanings:

I = The parametric values in Column I are of a mandatory nature. The Member States must not lay down less coercive values in their national rules. On the other hand, they may lay down more stringent values.

G = The parametric values in Column G are merely given by way of guidance and must be considered as guidelines. Where a value appears in both Column I and Column G, the Member State may fix more stringent values, taking G as a basis. If these guidelines are adopted by Member States they become binding in the countries which have adopted them.

O = The parametric values designated by the letter O allow for certain departures on account of exceptional meteorological conditions.

Bathing waters are considered to conform to the parametric values shown in the Annexes if they satisfy the following conditions:

In the case of the parameters listed in Column I of the Annexes, 95% of the samples must be equal to or lower than the values shown, except for the pH. In the case of dissolved oxygen, a range of values is laid down for fresh water. In the case of sea water, the oxygen percentage must not exceed the natural values of sea water measured at a distance of one kilometer from the coast at high tide.

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In the case of the parameters listed in Column G of the Annexes, 90% of the samples must be equal to or lower than the value laid down, except for the pH and dissolved oxygen, for which a range of values is supplied.

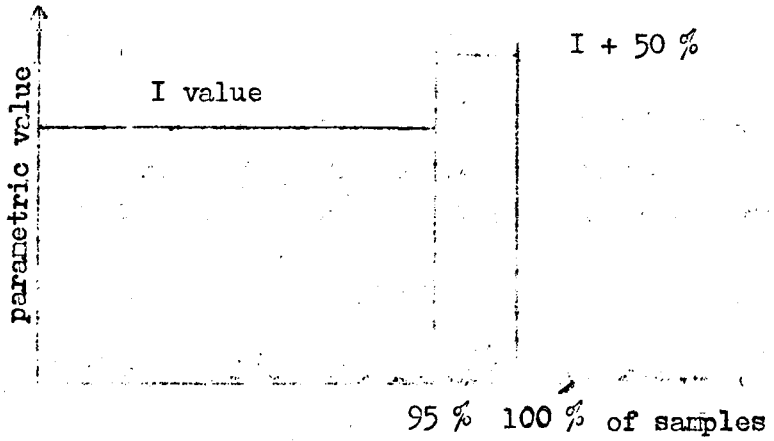
With regard to the 5% or 10% of the samples which according to the case do not conform:

(a) the water must not diverge by more than 50% from the maximum value of the parameters in question, excpet for the microbiological parameters, the pH and the dissolved oxygen.

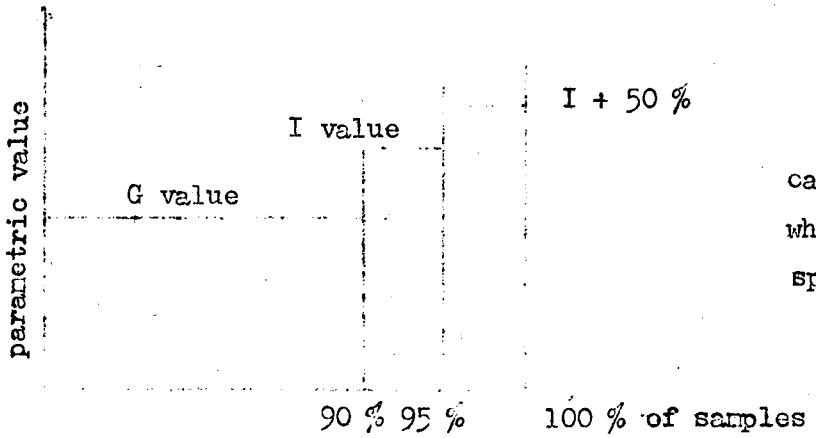
b) successive samples of water taken at a statistically appropriate frequency must not diverge from the parametric values relating to them.

In the case of the G value which does not have corresponding I values, the 10% of samples which do not conform with the maximum values or ranges shown in the Annexes may be accepted.

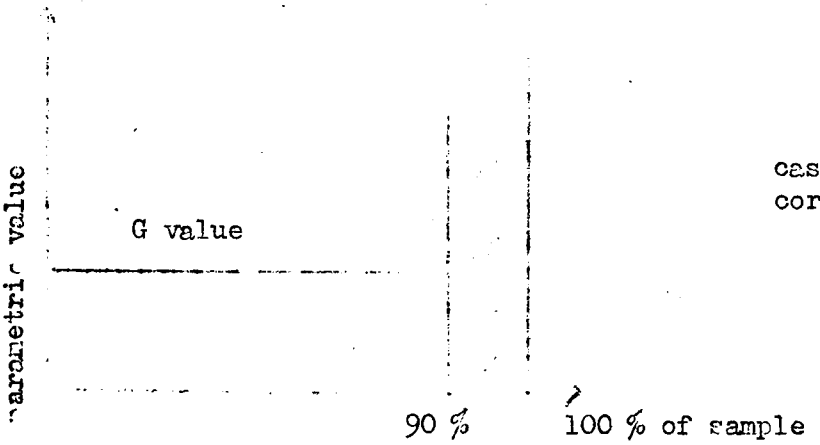
This is illustrated by the following graph:



Case for a I value



case for a G value for which a I value is also specified



case for a G value without corresponding I value

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3.7. Radioactive parameters

The parameters relating to radioactivity are not included in this list. They must conform to the provisions in force in the Member States adopted pursuant to the Basic Standards provided for in the Euratom Treaty.

4. Consultation of the European Parliament and the Economic and Social Committee

The Opinion of the European Parliament is required under the provisions of Articles 100 &235 of the EEC Treaty, and the Economic and Social Committee should also be consulted.

PROPOSAL FOR A COUNCIL DIRECTIVE RELATING TO THE QUALITY OF BATHING WATER

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Articles 100 and 235 thereof;

Having regard to the proposal from the Commission;

Having regard to the Opinion of the European Parliament;

Having regard to the Opinion of the Economic and Social Committee;

Whereas the protection of the environment and public health necessitates the reduction of pollution and the safeguarding against subsequent degradation of bathing water;

Whereas surveillance of bathing water is necessary in order to attain within the framework of the common market, the aims of the Community as regards the improvement of living conditions, the harmonious development of economic activities throughout the Community and continuous and balanced expansion;

Whereas there are certain provisions laid down by law, regulation or administrative action in Member States which directly affect the functioning of the common market but whereas all the necessary powers are not provided for in the Treaty;

Whereas the Programme of Action of the European Communities on the Environment* provides for the joint determination of quality objectives laying down the various requirements which an environment must satisfy, and in particular the definition of parameters for water, including bathing water;

Whereas in order to attain these quality objectives the Member States should lay down limit values corresponding to certain parameters, and whereas bathing waters should be made to conform to these values within eight years after the entry into force of this Directive;

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* OJ No C 112, 20 December 1973, p. 1

Whereas it should be provided that bathing water will, on certain conditions, be deemed to conform to the relevant parametric values even if a certain percentage of samples taken during the bathing season do not comply with the limits specified in the Annexes; whereas in cases in which the minimum frequency of such sampling is not specified in this Directive it should so specified be by the competent authorities of each Member State;

Whereas, in order to achieve a certain degree of flexibility in the application of this Directive, the Member States should have the power to provide for derogations; whereas such derogations must not, however, disregard requirements essential to the protection of public health;

Whereas technical progress necessitates rapid adaptation of the technical requirements laid down in the Annexes to this Directive; whereas it is advisable, in order to facilitate the introduction of the measures required for this purpose, to lay down a procedure establishing close cooperation between the Member States and the Commission within a Committee for the Adaptation to Technical Progress of Directives relating to Water Quality;

HAS ADOPTED THIS DIRECTIVE:

Article 1

1. This Directive concerns the quality of bathing waters, with the exception of water for therapeutic use and swimming-pool water.

2. For the purposes of this Directive:

   (a) "bathing waters" mean all running or still water, including sea water, in which the competent authorities of Member States authorize or tolerate bathing;

   (b) "bathing area" means any place where bathing water is found;

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(c) "bathing period" means a period commencing two weeks before the opening of and terminating at the end of the bathing season. Where there is no official opening this period lasts throughout the year.

3. The opening and the end of the bathing season referred to above shall be determined by the competent authorities of each Member State.

Article 2

1. For the purposes of thid Directive, bathing waters shall be subdivided into sea water and fresh water. For each of these two types of water there shall be different requirements, the physico-chemical and microbiological characteristics of which are set out in Annexes 1 and 2 to this Directive, which form an integral part hereof.

2. Each Member State shall specify, having regard to local geographical conditions, the category fresh water or sea water into which brackish and mixed waters in its estuaries are to be regarded as falling.

Article 3

The Member States shall lay down the limit values corresponding to certain parameters for bathing water in the following manner :

(a) in the case of the parametric values shown in column I (mandatory values) of Annexes 1 and 2, the Member States shall lay down values which conform to the limits shown in this column;

(b) in the case of the parametric values shown in both columns I and G, the Member States may lay down values more stringent than the I values, basing themselves on the guide values shown in column G;

(c) in the case of the parametric values shown solely in column G of Annexes 1 and 2, the Member States may lay down values based on those specified in those columns;

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(d) whenever possible, the Member States shall apply the G values in the case of bathing waters in which bathing is authorized or tolerated for the first time after the entry into force of this Directive.

Article 4

The Member States shall take all necessary steps to ensure that within eight years following the entry into force of this Directive the quality of bathing water conforms to the limit values laid down in accordance with Article 3.

Article 5

1. Bathing water shall be deemed to conform to the mandatory values of the relevant parameters if 95% of the samples of this water taken during the bathing period at the same sampling point comply with the limits specified in column I of Annexes 1 and 2.

2. Bathing water shall be deemed to conform to the guide values of the relevant parameters if 90% of the samples of this water taken during the bathing period at the same sampling point comply with the limits specified in column G of Annexes 1 and 2, irrespective of the values and the frequencies of exceeding them specified in the regulations of each Member State.

3. In the case of the 5% or 10% of samples which under paragraphs 1 and 2 above need not conform with the prescribed values :

(a) the water must not diverge by more than 50% from the limit values of the parameters in question, except for the microbiological parameters, and those in respect of pH and dissolved oxygen,

(b) consecutive water samples taken at statistically appropriate intervals must not diverge from the relevant parametric values.

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Article 6.

1. The Member States shall carry out sampling operations at the minimum frequency laid down in Annexes 1 and 2. When the minimum sampling frequency is not specified in the Annexes to this Directive it shall be determined by the competent authority of each Member State according to the size of the bathing area, the number of persons using it and the prevailing water temperature.

The number of persons - expressed as the mean density of bathers per kilometre of beach or other waterside in the bathing area - and the prevailing water temperature shall be determined on the basis of the average monthly values for the previous three years. For this purpose account shall be taken of the summer month in which the highest water temperature and the greatest number of bathers were recorded.

2. The parameters shown under the title of "pollution index" in Annexes 1 and 2 shall be verified by the competent authority when a sanitary inspection carried out in the region in which a bathing area is located reveals that there is discharge or suspected discharge of these substances.

3. Samples shall be taken in the bathing area when the density of bathers is at a maximum, and preferably at a depth of 30 centimetres below the surface of the water.

4. Local investigation of the conditions prevailing upstream in the case of fresh running water and of the ambient conditions in the case of fresh still water and sea water shall be carried out scrupulously and repeated periodically in order to obtain geographical and topological data and to determine the volume and nature of all pollutant and potentially pollutant discharges and their effects as a function of the distance from the bathing area.

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5. The methods of reference analysis for the parameters considered are set out in Annexes 1 and 2. Laboratories which employ other methods shall satisfy themselves that the results obtained are equivalent to those given by the reference methods.

Article 7

In no case may the implementation of measures taken pursuant to this Directive result directly or indirectly in greater deterioration of the existing quality of bathing water.

Article 8

In the following cases derogations from the provisions of this Directive shall be permitted :

(a) in the case of floods or other natural disasters;

(b) in the case of certain parameters market (0) in Annexes 1 and 2, where exceptional meteorological conditions occur;

(c) when bathing water undergoes natural enrichment with certain substances exceeding the limits laid down in accordance with the provisions of Article 3.

Natural enrichment means the process whereby, without human intervention, a given body of water receives from the soil certain substances contained therein.

In no case shall any derogation pursuant to this Article disregard the requirements essential to the protection of public health.

Where a Member State avails itself of its power of derogation it shall forthwith so inform the Commission, stating the reasons therefor and the period during which the derogation is to apply.

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Article 9

Such amendments as are needed to adapt the Annexes to this Directive to technical progress shall be adopted in accordance with the procedure laid down in Article 11.

Article 10

1. There is hereby set up a Committee for the Adaptation to Technical Progress of Directives relating to Water Quality (hereinafter called the "Committee"). It shall consist of representatives of the Member States, with a representative of the Commission as Chairman.

2. The Committee shall draw up its own rules of procedure.

Article 11

1. Where reference is made to the procedure laid down in this Article, the Chairman shall refer the matter to the Committee, either on his own initiative or at the request of the representative of a Member State.

2. The representative of the Commission shall submit to the Committee a draft of the measures to be taken. The Committee shall deliver its opinion on the draft within a time limit set by the Chairman having regard to the urgency of the matter concerned. It shall act by a majority of 41 votes, the votes of the Member States being weighted as provided in Article 148(2) of the Treaty. The Chairman shall not vote.

3. (a) The Commission shall adopt the measures envisaged where they are in accordance with the opinion of the Committee.

(b) Where the measures envisaged are not in accordance with the opinion of the Committee or if no opinion is adopted, the Commission shall without

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delay forward to the Council a proposal relating to the measures to be taken. The Council shall act by a qualified majority.

(c) If, upon the expiry of three months from the date on which the proposal was forwarded to the Council, the latter has not acted, the proposed measures shall be adopted by the Commission.

Article 12

1. Member States shall put into force the laws, regulations and administrative provisions needed in order to comply with this Directive and its Annexes within two years of its notification and shall forthwith inform the Commission thereof.

2. Member States shall communicate to the Commission the texts of the main provisions of national law which they adopt in the field covered by this Directive.

Article 13

This Directive is addressed to the Member States.

Done at

ANNEX I

REQUIRED QUALITY OF SEA WATER INTENDED FOR BATHING

PARAMETERS	UNITS	MANNER OF EXPRESSION	METHODS OF ANALYSIS (Art. 6 (5))	(Art. 6 (1)) MINIMUM SAMPLING FREQUENCY[1] (10 000)		WATER TEMP. °C	G	I
Microbiological:								
Total coliforms	per 100 ml	total coliforms per 100 ml	1. Fermentation in multiple tubes. Subculturing of the positive tubes on a confirmation medium. Count according to M.P.N. (most probable number)	B	A		2 000	10 000
Fecal coliforms	per 100 ml	fecal coliforms per 100 ml		B	A	> 20	500	2 000
				B	A	< 20	500	5 000
			2. 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 fecal coliforms are investigated.					
Fecal streptococci	per 100 ml	fecal streptococci per 100 ml	1. Latsky method. Count according to M.P.N. (most probable number). 2. Filtration on membrane. Culture on an appropriate medium.	D	C		100	1 000

ANNEX I

PARAMETERS	UNITS	MANNER OF EXPRESSION	METHODS OF ANALYSIS (Art. 6.5)	(Art. 6.1) MINIMUM SAMPLING FREQUENCY[1] <10 000>		WATER TEMP. °C	G	I
Salmonella	per litre	Salmonella per litre	Concentration by membrane filtration. Inoculation on a standard medium. Enrichment – subculturing on isolating agar – identification.					0 (2)
Viruses	PFU per 10 l		Concentration by filtration, flocculation or centrifuging and confirmation					0 (2)
Physico-chemical pH	pH	pH	Electrometry with calibration at pH 7 and 9.	B	A			6 - 9
Colour			Visual or photometric inspection with standards on the Pt Co scale	B	A			No visible change in colour (0)
Mineral oils	mg/l		Visual inspection by extraction using an adequate weighed volume of the dry residue	B B	A A			No film visible on the surface of the water < 0.3
Surface-active substances reading with methylene blue	mg/l	Sodium lauryl sulphate	Visual inspection Absorption spectrophotometry with methylene blue	B B	A A			No lasting foam < 0,3
Phenol indices	mg/l	C_6H_5OH	Verification of the absence of odour due to phenol Absorption spectrophotometry 4-aminoantipyrine (4.A.A.P.) method	B B	A A			No unpleasant odour

ANNEX I

PARAMETERS	UNITS	MANNER OF EXPRESSION	METHOD OF ANALYSIS (Art. 6.5)	(Art. 6.1) MINIMUM SAMPLING FREQUENCY[1] <10 000>		G	I
Tarry residues			Visual inspection	B	A	No visible tarry residues on the foreshore.	
Floating materials such as wood, plastic articles, bottles, containers of glass, plastic, rubber or any other substance			Visual inspection	B	A	No floating materials	
Pollution index: The concentration of As, Cd, Cr^{VI}, Pb, Hg, CN^- pollutants and pesticides must not exceed the natural values of sea water measured at 1 km from the coast at high tide.							
Pesticides (parathion, HCH, dieldrin)	mg/l		Extraction with appropriate solvents and chromatographic determination			(2)	
Arsenic	mg/l	As	atomic absorption possibly preceded by extraction			(2)	
Cadmium	mg/l	Cd				(2)	
Chromium ^{VI}	mg/l	Cr^{VI}				(2)	
Lead	mg/l	Pb				(2)	
Mercury	mg/l	Hg				(2)	
Cyanides	mg/l	CN^-	Absorption spectrophotometry using a specific reagent			(2)	
Transparency	m		Secchi's disc			(3)	
Dissolved oxygen	%		Winkler's method Electrometric method (oxygen meter)			(3)	
Nitrates	mg/l		Absorption spectrophotometry using a specific reagent			(3)	
Phosphates	mg/l		Absorption spectrophotometry using a specific reagent			(3)	

ANNEX I

(0 Exceeding of limits provided for in cases of exceptional geographical or meteorological conditions.

(1 Minimum sampling frequency for an average concentration of bathers more or less than 10 000 persons per linear km (see Art. 6.1).

A: weekly
B: fortnightly
C: monthly
D: six-monthly
E: annually

(2 Concentration to be checked by the competent local authorities of each Member State when a sanitary inspection in the area of establishment of the bathing beach reveals its presence.

(3 These parameters must be checked by the competent authorities of each Member State when there is a tendency towards the entrophication of the water.

ANNEX II

REQUIRED QUALITY OF FRESH WATER INTENDED FOR BATHING

PARAMETERS	UNITS	MANNER OF EXPRESSION	METHODS OF ANALYSIS (Art. 6.5)	(Art. 6.1) MINIMUM SAMPLING FREQUENCY[1] <10 000>		G	I
Microbiological:							
Total coliforms	per 100 ml	Total Col. per 100 ml	1. Fermentation in multiple tubes. Subculturing of the positive tubes on a confirmation medium. Count according to M.P.N. (most probable number).	C	B		10 000
Fecal coliforms	per 100 ml	Fecal Col. per 100 ml		C	B		2 000
			2. 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 fecal coliforms are investigated.				
Fecal streptococci	per 100 ml	Fecal Streptococci per 100 ml	1. Litsky method. Count according to M.P.N. (most probable number)				200
			2. Filtration on membrane. Culture on an appropriate medium.				

ANNEX II

REQUIRED QUALITY OF FRESH WATER INTENDED FOR BATHING

PARAMETERS	UNITS	MANNER OF EXPRESSION	METHOD OF ANALYSIS (Art. 6.5)	(Art. 6.1) MINIMUM SAMPLING FREQUENCY 1) <10 000>		G	I
Salmonella	per litre	Salmonella per litre	Concentration by membrane filtration. Inoculation on a standard medium. Enrichment-subculturing on isolating agar -- identification.				0
Viruses	PFU per 10 l		Concentration by filtration, flocculation or centrifuging and confirmation.				1
Sulphite-reducing clostridium	per 20 ml.		After heating the sample to 80°, counting of the spores by -- seeding in a standard medium - membrane filtration - distribution into tubes of "D.R.C.M." (differential reinforced clostridial medium). Count according to M.P.N. (most probable number)				2
Physico-chemical pH	pH	pH	Electrometry with calibration at pH 7 and 9	C	B		6 - 9(0)
Colour			Visual or photometric inspection with standards on the Pt Co scale	C	B		no abnormal change in colour(0)
Suspended matter	mg/l	S.M.	Suspended matter; Method of Analysis to need "by filtration or centrifugation weight after drying at 105°0.			25 -	
Transparency	m	Secchi's disc	Secchi's diso	C	B	1.5	1(0)

ANNEX II

REQUIRED QUALITY OF FRESH WATER INTENDED FOR BATHING

PARAMETERS	UNITS	MANNER OF EXPRESSION	METHOD OF ANALYSIS (Art. 6.5)	(Art. 6.1) MINIMUM SAMPLING FREQUENCY[1] <10 000>		G	I
Dissolved oxygen	% Saturation	O_2	Winkler's method electrometric method (oxygen meter)	C	B	80 - 120	50 - 150
Ammonia	mg/l	NH_4	absorption spectrophotometer Nessler's reagent indophenol blue method			1	
Kjeldahl nitrogen	mg/l	N	Kjeldahl method			2	
Mineral oils			Visual inspection				no film visible on the surface of the water
	mg/l		by extraction using an adequate weighed volume of the dry residue				≤ 0.3
Surface-active substances reacting with methylene blue			Visual inspection	C	B		no lasting foam
	mg/l	Sodium lauryl sulphate	absorption spectrophotometry with methylene blue	C	B	≤ 0.2	≤ 0.3
Phenol indices			Verification of the absence of colour due to phenol			no unpleasant odour	
	mg/l	C_6H_5OH	Absorption spectrophotometry 4 - aminoantipyrine (4 A.A.P.) method			≤ 0.005	≤ 0.05

ANNEX II

REQUIRED QUALITY OF FRESH WATER INTENDED FOR BATHING

PARAMETERS	UNITS	MANNER OF EXPRESSION	METHOD OF ANALYSIS (Art. 6.5)	(Art. 6.1) MINIMUM SAMPLING FREQUENCY (1) (< 10 000)	G	I
Floating materials such as wood, plastic articles, bottles, containers of glass, plastic, rubber or any other substance			Visual inspection		no floating materials	
Pollution index						
Pesticides (parathion, HCH, dieldrin)	mg/l		Extraction with appropriate solvents and chromatographic determination		(2)	
Arsenic	mg/l	As	atomic absorption		(2)	
Cadmium	mg/l	Cd	atomic absorption		(2)	
Chromium VI	mg/l	Cr^{VI}	Absorption spectrophotometry		(2)	
Lead	mg/l	Pb	Absorption spectrophotometry		(2)	
Mercury	mg/l	Hg	Absorption spectrophotometry		(2)	
Cyanides	mg/l	CN^-	Absorption spectrophotometry using a specific reagent		(2)	

(0) Exceeding of limits provided for in cases of exceptional geographical or meteorological conditions.

(1) Minimum sampling frequency for an average concentration of bathers more or less than 10 000 persons per linear km (see Art. 6.1). A: weekly B: fortnightly C: monthly D: six-monthly E: annually

(2) Concentration to be checked by the competent authorities of each Member State when a sanitary inspection in the area of establishment of the bathing beach reveals its presence.