ANNEX 2

RESOLUTION LDC.23(10)

GUIDELINES FOR THE APPLICATION OF THE ANNEXES
TO THE DISPOSAL OF DREDGED MATERIAL

THE TENTH CONSULTATIVE MEETING,

RECALLING Article I of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, which provides that Contracting Parties shall individually and collectively promote the effective control of all sources of pollution in the marine environment,

RECOGNIZING that the major part of the sediments dredged from the waterways of the world either are either not polluted or may possess mitigative properties that diminish the development of adverse environmental impacts after disposal at sea,

RECOGNIZING FURTHER that the major cause of the contamination of sediments requiring to be dredged is the emission of hazardous substances into internal and coastal waters and that problems will continue until such emissions are controlled at source,

RECOGNIZING ALSO the need for maintaining open shipping lanes and harbours for maritime transport and that undue burden should be avoided with regard to the interpretation and application of the provisions of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Dumping Convention, 1972),

RECALLING that the Eighth Consultative Meeting by resolution LDC.17(8) adopted Guidelines for the Application of Annex III to the London Dumping Convention with a view to providing guidance for the uniform interpretation of the factors to be considered in establishing criteria governing the issue of permits for disposal at sea,

RECOGNIZING that for the disposal of dredged material at sea not all of the factors listed in Annex III and their corresponding interpretations are applicable,

RECALLING FURTHER that the Fourth Consultative Meeting adopted Interim Guidelines for the Implementation of paragraphs 8 and 9 of Annex I to the Convention with a view to providing guidance for the interpretation of certain conditions under which permits may be issued for disposal at sea of hazardous substances for which sea disposal is otherwise prohibited,

NOTING the discussion which took place within the Scientific Group on Dumping on the need to prepare specific guidelines for the application of the Annexes to the Convention with regard to the disposal at sea of dredged material,

HAVING CONSIDERED the draft Guidelines for the Application of the Annexes to the Disposal of Dredged Material at Sea prepared by the Scientific Group on Dumping,

1. ADOPTS the Guidelines for the Application of the Annexes to the Disposal of Dredged Material at Sea as set out at Annex here to;

2. RESOLVES that Contracting Parties to the Convention when assessing the suitability of dredged material for disposal at sea shall take full account of the Guidelines for the Application of the Annexes to the Disposal of Dredged Material at Sea;

3. AGREES to review the Guidelines for the Application of the Annexes to the Disposal of Dredged Material at Sea within five years time in light of experience gained by Contracting Parties with these guidelines, in particular with regard to the application of the terms "trace contaminants", "rapidly rendered harmless" and "special care" as defined for disposal of dredged material at sea;

4. REQUESTS Contracting Parties to submit to the Organization for distribution to all Contracting Parties information on their experience gained with the above guidelines, including case studies;

5. CALLS UPON Contracting Parties to take all practicable steps to reduce pollution of marine sediments, including control of emissions of hazardous substances into internal and coastal waters.

ANNEX

GUIDELINES FOR THE APPLICATION OF THE ANNEXES TO THE DISPOSAL OF DREDGED MATERIAL

1 INTRODUCTION

1.1 In accordance with article IV(1)(a) of the Convention, Contracting Parties shall prohibit the dumping of dredged material containing substances listed in Annex I unless the dredged material can be exempted under paragraph 8 (rapidly rendered harmless) or paragraph 9 (trace contaminants) of Annex I.

1.2 Furthermore, in accordance with article IV(1)(b) of the Convention, Contracting Parties shall issue special permits for the dumping of dredged material containing substances described in Annex II and, in accordance with Annex II, shall ensure that special care is taken in the disposal at sea of such dredged material.

1.3 In the case of dredged material not subject to the provisions of articles IV(1)(a) and IV(1)(b), Contracting Parties are required under article IV(1)(c) to issue a general permit prior to dumping.

1.4 Permits for the dumping of dredged material shall be issued in accordance with article IV(2) which requires careful consideration of all the factors set forth in Annex III. In this regard, the Eighth Consultative Meeting in adopting Guidelines for the Implementation and Uniform Interpretation of Annex III (resolution LDC.17(8)) resolved that Contracting Parties shall take full account of these Guidelines in considering the factors set forth in that Annex prior to the issue of any permit for the dumping of waste and other matter at sea.

1.5 With regard to the implementation of paragraphs 8 and 9 of Annex I to the Convention, the Fourth Consultative Meeting adopted Interim Guidelines (LDC IV/12, annex 5) which provide advice concerning the conditions under which permits may be issued for dumping wastes containing Annex I substances, and concerning the evaluation of the terms "trace contaminants" and "rapidly rendered harmless"

1.6 Notwithstanding the general guidance referred to in paragraphs 1.4 and 1.5 above, subsequent deliberations by Contracting Parties have determined that the special characteristics of dredged material warrant separate guidelines to be used when assessing the suitability of dredged material for disposal at sea. Such guidelines would be used by regulatory authorities in the interpretation of paragraphs 8 and 9 of Annex I, and in the application of the considerations under Annex III. These Guidelines for the Application of the Annexes to the Disposal of Dredged Material have been prepared for this purpose and, more specifically, are intended to serve the following functions:

.1 to replace the Interim Guidelines for the Implementation of paragraphs 8 and 9 of Annex I as they apply to dredged material; and

.2 to replace section A of the Guidelines for the Implementation and Uniform Interpretation of Annex III (resolution LDC.17(8)).

2 CONDITIONS UNDER WHICH PERMITS FOR DUMPING OF DREDGED MATERIAL MAY BE ISSUED

2.1 A Contracting Party may after consideration of the factors contained in Annex III issue a general permit for the dumping of dredged material if:

.1 although Annex I substances are present, they are either determined to be present as a "trace contaminant" or to be "rapidly rendered harmless" by physical, chemical or biological processes in the sea provided they do not:

- make edible organisms unpalatable, or
- endanger human health or that of domestic animals; and

.2 the dredged material contains less than significant amounts* of substances listed in part A of Annex II and meets the requirements of part C of Annex II.

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* The following interpretations of "significant amounts" were agreed by the Eighth Consultative Meeting:

Pesticides and their by-products not covered by Annex I and lead and lead compounds:	0.05% or more by weight in the waste or other matter
All other substances listed in Annex II, paragraph A:	0.1% or more by weight in the waste or other matter

2.2 If the conditions under 2.1.2 above are not met a Contracting Party may issue a special permit provided the condition under 2.1.1 has been met. Such a special permit should either prescribe certain special care measures and/or give limiting conditions prescribed by national authorities to diminish the pollution source.

2.3 The assessment procedures and tests described in the following sections are considered to apply equally to the interpretation of "harmlessness" (paragraph 8 of Annex I) and "trace contaminants" (paragraph 9 of Annex I) when applied in association with sections B and C of the Annex III guidelines.

3 ASSESSMENT OF THE CHARACTERISTICS AND COMPOSITION OF DREDGED MATERIAL

This section replaces the Guidelines for the Implementation and Uniform Interpretation of Annex III, part A, and provides an interpretation for the assessment of dredged material. It should be considered in conjunction with parts B and C of the Guidelines on Annex III.

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1 Total amount and average composition of matter dumped (e.g. per year)

2 Form, e.g. solid, sludge, liquid, or gaseous

For all dredged material to be disposed of at sea the following information should be obtained:

- gross wet tonnage per site (per unit time)
- method of dredging
- visual determination of sediment characteristics (clay-silt/sand/gravel/boulder)

In the absence of appreciable pollution sources dredged material may be exempted from the testing referred to in these Guidelines in the

following section if it meets one of the criteria listed below; in such cases the provisions of Annex III sections B and C should be taken into account:

.1 Dredged material is composed predominantly of sand, gravel or rock and the material is found in areas of high current or wave energy such as streams with large bed loads or coastal areas with shifting bars and channels;

.2 Dredged material is for beach nourishment or restoration and is composed predominantly of sand, gravel, or shell with particle sizes compatible with material on the receiving beaches; and

.3 In the absence of appreciable pollution sources, dredged material not exceeding 10,000 tonnes per year from small, isolated and single dredging operations, e.g. at marinas or small fishing harbours, may be exempted. Larger quantities may be exempted if the material proposed for disposal at sea is situated away from known existing and historical sources of pollution so as to provide reasonable assurance that such material has not been contaminated.

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3 Properties: physical (e.g. solubility and density), chemical and biochemical (e.g. oxygen demand, nutrients) and biological (e.g. presence of viruses, bacteria, yeasts, parasites)

For dredged material that does not meet the above exemptions, further information will be needed to fully assess the impact. Sufficient information may be available from existing sources, for example from field observations on the impact of similar material at similar sites or from previous test data on similar material tested not more than five years previously.

In the absence of this information, chemical characterization will be necessary as a first step to estimate gross loadings of contaminants. This should not mean that each dredged material should be subjected to exhaustive chemical analysis to establish the concentrations of a standard wide-ranging list of chemical elements or compounds; knowledge of local discharges or other sources of pollution, supported by a selective analysis, may often be used to assess the likelihood of contamination. Where such an assessment cannot be made the levels of Annex I and II substances must be established as a minimum.

Where this information coupled with knowledge of the receiving area, indicates that the material to be dumped is substantially similar in chemical and physical properties to the sediments at the proposed disposal site, testing described in the following section might not be necessary.

Where chemical analysis is appropriate, further information may also be useful in interpreting the results of chemical testing, such as:

- density;
- per cent solids (moisture content);
- grain size analysis (% sand, silt, clay); and
- total organic carbon (TOC).

In addition, there are several other parameters which may facilitate the interpretation of the behaviour, fate and effects of dredged material (e.g. sediment transport, pollutant transformation, sediment mitigative properties).

Sampling of sediments from the proposed dredging site should represent the vertical and horizontal distribution and variability of the material to be dredged. Samples should be spaced so as to identify and differentiate between non-contaminated and contaminated locations.

4	Toxicity
5	Persistence: physical, chemical and biological
6	Accumulation and biotransformation in biological materials or sediments

The purpose of testing under this section is to establish whether the disposal at sea of dredged material containing Annex I and II substances might cause undesirable effects, especially the possibility of chronic or acute toxic effects on marine organisms or human health, whether or not arising from their bioaccumulation in marine organisms and especially in food species.

The following biological test procedures might not be necessary if the previous characterization of the material and of the receiving area allows an assessment of the environmental impact. If, however, the previous analysis of the material shows the presence of Annex I or Annex II substances in considerable quantities or of substances whose biological effects are not understood, and if there is concern for antagonistic or synergistic effects of more than one substance, or if there is any doubt as to the exact composition or properties of the material, it may be necessary to carry out suitable biological test procedures. These procedures should be carried out on the solid phase with bottom dwelling macrofauna and may include the following:

- acute toxicity tests;
- chronic toxicity tests capable of evaluating long-term sub-lethal effects, such as bioassays covering an entire life cycle; and
- tests to determine the potential for bioaccumulation of the substance of concern.

Substances in dredged material, when entering the marine environment may undergo physical and chemical alteration that directly affects the release, retention, transformation and/or toxicity of these substances. This shall be taken into particular account when carrying out the various tests mentioned above and when interpreting the results of these tests for actual or future dumping site conditions.

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7 Susceptability to physical, chemical and biochemical changes and interaction in the aquatic environment with other dissolved organic and inorganic materials

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Contaminants in dredged material, after dumping, may be altered by physical, chemical and biochemical processes to more or to less harmful substances. The susceptability of dredged material to such changes should be considered in the light of the eventual fate and effects of the dredged material. In this context field verification of predicted effects is of considerable importance.

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8 Probability of production of taints or other changes reducing marketability of resources (fish, shellfish, etc.)

Proper dump site selection rather than a testing application is recommended. Site selection to minimize impact on commercial or recreational fishery areas is a major consideration in resource protection and is covered in greater detail in section C2 of Annex III.

4 DISPOSAL MANAGEMENT TECHNIQUES

4.1 Ultimately, the problems of contaminated dredged material disposal can be controlled effectively only by control of point source discharges to waters from which dredged material is taken. Until this objective is met, the problems of contaminated dredged material may be addressed by using disposal management techniques.

4.2 The term "disposal management techniques" refers to actions and processes through which the impact of Annex I or Annex II substances contained in dredged material may be reduced to, or controlled at, a level which does not constitute a hazard to human health, harm to living resources, damage to amenities or interference with legitimate uses of the sea. In this context they may, in certain circumstances, constitute additional methods by which dredged material containing Annex I substances may be "rapidly rendered harmless" and which may constitute "special care" in the disposal of dredged material containing Annex II substances.

4.3 Relevant techniques include the utilization of natural physical, chemical and biological processes as they affect dredged material in the sea; for organic material these may include physical, chemical or biochemical degradation and/or transformation that result in the material becoming non-persistent, non-toxic and/or non-biologically available. Beyond the considerations of Annex III sections B and C, disposal management techniques may include burial on or in the sea floor followed by clean sediment capping, utilization of geochemical interactions and transformations of substances in dredged material when combined with sea water or bottom sediment, selection of special sites such as in abiotic zones, or methods of containing dredged material in a stable manner (including on artificial islands).

4.4 Utilization of such techniques must be carried out in full conformity with other Annex III considerations such as comparative assessment of alternative disposal options and these guidelines should always be associated with post-disposal monitoring to assess the effectiveness of the technique and the need for any follow-up management action.

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