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First Meeting of the Working Group for
Scientific and Technical Co-operation

Athens, 28 September - 2 October 1981



REPORT OF THE FIRST MEETING OF THE WORKING GROUP
FOR SCIENTIFIC AND TECHNICAL CO-OPERATION
FOR MED PUL

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Introduction

1. The Contracting Parties to the Barcelona Convention adopted, at their second meeting (Cannes, 2-7 March 1981), the Long-term Pollution Monitoring and Research Programme (document UNEP/IG.23/11, annex V, attached to this report as annex VII). A standing Working Group for Scientific and Technical Co-operation was thereby established by the Contracting Parties to assist them in the review of the progress of the programme and in the evaluation of the results. The Working Group would advise UNEP on technical and policy matters related to the programme and prepare recommendations for submission, through UNEP as the secretariat of the Convention, to the meetings of the Contracting Parties.

2. In pursuance of this decision, the Co-ordinating Unit of the Mediterranean Action Plan invited all Contracting Parties to designate their National Co-ordinators for MED POL. In response to this invitation the Governments of Algeria, Cyprus, France, Israel, Italy, Malta, Monaco, Spain, Tunisia and Turkey designated in writing their National Co-ordinators for MED POL and, in some cases, their substitutes. The European Economic Community also designated a Co-ordinator for MED POL matters. Other Contracting Parties announced that they were in the process of designating their National Co-ordinator.

Participation

3. The designated National Co-ordinators were invited to attend the First Meeting of the Working Group. In addition, the secretariat invited the Contracting Parties to designate additional experts to attend this first meeting of the Working Group. Representatives of the Co-operating Agencies and experts designated by them were also invited. The list of participants appears in annex I.

Agenda item 1: Opening of the Meeting

4. Dr. S. Keckes, Director of UNEP's Regional Seas Programme Activity Centre, opened the meeting at 10 a.m. on 28 September 1981. In his opening address he recalled that the Working Group had been established to assist the Contracting Parties to the Barcelona Convention in reviewing and evaluating the progress of MED POL - PHASE II, and in preparing relevant recommendations for submission, through UNEP, to the meetings of the Contracting Parties. He stated that UNEP was planning to consult the Working Group on all matters related to policy to be followed for the implementation of MED POL. The present meeting had, in fact, been organized in order to obtain the Working Group's advice on the steps contemplated in the launching of MED POL - PHASE II.

5. Dr. Keckes stressed UNEP's continued interest in the Mediterranean Action Plan and, in particular, the contribution of MED POL to UNEP's Global Environment Monitoring System (GEMS). UNEP's continued financial contributions to the activities of the Mediterranean Action Plan would be contingent upon the contribution that these activities would make to UNEP's overall goals.

6. He informed the meeting of the serious financial difficulties faced by the Action Plan as a whole due to late payment of contributions to the Trust Fund by certain Contracting Parties, and invited the National Co-ordinators for MED POL to assist, wherever possible, in this respect.

7. Mr. Manos, Co-ordinator of the Mediterranean Action Plan, in welcoming the participants, informed them about the financial situation of the Action Plan which affected the prospects of MED POL as well. The Cannes meeting had approved a two-year programme of \$7.3 million including \$1.9 million for MED POL. Between January and September 1981 only \$1.8 million became available, leaving some \$5.3 million to be collected by the end of 1982.

8. He recalled that, in the past, various compensating mechanisms had assisted the programme, namely UNEP funds, delays in the start of several components of the Action Plan, and an advance contribution made by France at the end of last year. Since these mechanisms would not be available to help the programme over the difficult first months of 1982, the Bureau of the Contracting Parties at a special meeting held in Athens on 23 September came to the conclusion that in addition to what could be expected through December 1981, one million dollars would be required to cover 1982 staff costs and the activities of the first quarter of the year. The Bureau suggested that coastal States approve a one million dollar loan, an unusual procedure, for which a bank would have to be found. The Bureau was aware of the alternative, which would mean further postponement of new activities and the actual closing down of some ongoing ones.

Agenda item 2: Organization of the meeting

2.1 Establishment of the Working Group for Scientific and Technical

Co-operation.

9. Dr. Keckes reminded the participants of the terms of reference of the meeting. He referred to the long-established co-operation in the scientific field developed during MED POL - PHASE I, which constituted one of the basic elements of the Mediterranean Action Plan. He also stated that PHASE I had been a voluntary programme carried out with national laboratories, whereas the Contracting Parties have to take direct responsibility for PHASE II under the obligations they assumed with the entering into force of the Barcelona Convention and its related protocols.

2.2 Rules of Procedure

10. Mr. A. Manos informed the meeting that the Rules of Procedure of the Meeting and Conferences of the Contracting Parties to the Barcelona Convention and its Related Protocols (UNEP/IG.23/11 annex VII) would apply mutatis mutandis to the meeting of the Working Group as a subsidiary body to the Conference of the Contracting Parties, and that in the case where a recommendation would have to be made, only the National Co-ordinators for MED PUL would be in a position to speak on behalf of their relevant authorities.

2.3 Election of Officers

11. The meeting unanimously elected the following officers :

Chairman : Mr. A. Vatrican (Monaco)
Vice-chairmen : Mr. S. Hadj Ali (Tunisia)
Mr. N. Della Croce (Italy)
Rapporteur : Mr. A. Demetropoulos (Cyprus)

2.4 Adoption of the Agenda

12. After having introduced a modification in agenda item 5, the proposed agenda was adopted by the meeting. The agenda is attached to this report as annex II.

Agenda item 3 : MED POL - PHASE II: Review of the basic criteria for

national monitoring programmes and assistance for their

implementation

13. Dr. A. Cruzado, Senior Marine Scientist of the MED UNIT, on behalf of the secretariat, introduced document UNEP/WG.62/3, which had been prepared by the MED UNIT in collaboration with the Co-operating Agencies taking into account the description of the Long-term Pollution Monitoring and Research Programme in the Mediterranean (MED POL - PHASE II), whose basic details had been laid down by the Second Meeting of the Contracting Parties to the Barcelona Convention, Cannes, 2 - 7 March 1981 (UNEP/IG.23/11, annex V), as well as the experience gained through MED POL - PHASE I. He asked the meeting to review the document and make recommendations for the implementation of the monitoring activities.

14. At the request of the participants, Mr. Manos gave, before any further discussion on the substance of that document, information on the ratification of the Barcelona Convention and its Protocols, as it was considered significant in relation to the monitoring activities proposed. He mentioned that seventeen countries (i.e. all the Mediterranean countries except Albania), and the European Economic Community, had ratified the Barcelona Convention. The Dumping Protocol had been ratified by all the Contracting Parties with the exception of Israel. The Emergency Protocol had been ratified by all the Contracting Parties, except the European Economic Community. The Land-based Sources Protocol had been signed by twelve countries and the European Economic Community, but had not been ratified by any country so far.

15. The meeting took note of document UNEP/WG.62/3. The Introduction and the Guidelines (annex III of UNEP/WG.62/3) were discussed thoroughly and amended as set forth in annex IV to this report.

16. The participants felt that the Draft Agreement (annex I of UNEP/WG.62/3) was a document of legal nature which could give rise to some difficulties and that it had to be examined by the competent authorities of the Contracting Parties.

17. The meeting considered that the substantive part of the Technical Annex (annex II of UNEP/WG.62/3, pages 1 - 2) had been covered by the discussions on the Introduction and Guidelines and that the remaining parts needed only minor editorial changes to bring them into line with the rest of the document. However, in relation to the Assistance Component contained in the Technical Annex (annex II of UNEP/WG.62/3) the meeting felt that the matter could not be discussed in detail because of lack of time, but, nevertheless, its importance was unanimously stressed. The Working Group recommended the MED UNIT to request the views of the Contracting Parties on the subject when forwarding the revised document to them.

18. The contents of the Appendix were also discussed. As a result, the meeting recommended that :

- (a) the reporting forms related to the Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft should be reproduced and distributed as approved by the Second Meeting of the Contracting Parties (document UNEP/WG.28/3); and
- (b) the reporting forms related to the monitoring activities should be further elaborated by the secretariat and sent to the MED POL National Co-ordinators for their views. These views would then be taken into consideration by the MED UNIT in revising

19. The meeting considered that, in relation to section A.2 of the Guidelines (annex III of UNEP/WG.62/3), priority should be given to a limited number of parameters (total mercury, total cadmium and petroleum hydrocarbons) from the list of parameters identified among the substances listed in annexes I and II of the Land-based Sources and Dumping Protocols. The parameters which were not included in the priority list would be considered as optional for the initial three-year period. The decision to include in their monitoring programme the parameters not included in the priority list would be left to the Contracting Parties.

20. In relation to section B.2 of the Guidelines, the meeting recommended that faecal coliforms in sediments, although it was not a mandatory parameter, also be taken into account whenever possible during that initial period.

21. As regards section B.3 of the Guidelines (annex III of UNEP/WG.62/3), the meeting decided that the sampling frequency for the various parameters to be monitored in the coastal waters should be communicated with the shortest possible delay by the National Co-ordinators for MED POL to the MED UNIT (see as an example Table 6 of Guidelines).

22. In connexion with section C.2, one expert proposed that in future, monitoring of faecal coliforms should also be made in reference areas.

23. Some participants expressed concern about the parameters and matrices included in Tables 5 and 8 of the Guidelines (annex III of UNEP/WG.62/3).

24. Financial assistance related to the monitoring activities will be tentatively given during the first year by the MED UNIT without previous consultation with the Working Group for Scientific and Technical Co-operation.

25. The Working Group recommended the MED UNIT to request, with the least possible delay, the views of the Contracting Parties on document UNEP/WG.62/3 as revised by the meeting.

Agenda item 4: MED POL - PHASE II: Review of the basic criteria for the

development of supporting and research activities

26. Dr. Cruzado introduced document UNEP/WG.62/4 which had been prepared by the MED UNIT in collaboration with the Co-operating Agencies. He mentioned that the document contained the basic criteria for the development of the research activities envisaged in paragraphs 40 to 42 of annex V to the report of the Second Meeting of the Contracting Parties, Cannes, 2 - 7 March 1981.

27. The Working Group was asked to take note of the document and to review the sections concerned with the procedure to be followed for the development of the research activities.

28. The discussion that ensued gave rise to certain amendments in the introductory part of the document, the amended version of which is annexed to this report as annex V.

29. As regards the implementation of the research activities, the meeting asked the MED UNIT to prepare a more realistic timetable than the one proposed (appendix II of UNEP/WG.62/4).

Agenda item 5: Review of the draft Mediterranean Environmental Quality

Criteria and Reference Methods for Pollution Studies in

the Mediterranean

30. The meeting considered that it had no time to review documents UNEP/WG.62/5 and UNEP/WG.62/6. The secretariat informed the meeting that a revised and improved version of these documents would be prepared by the MED UNIT. The meeting asked the MED UNIT to forward, through the National Co-ordinators for MED POL, the revised version of these documents to the Contracting Parties for comments. The comments received would then be taken into account in the preparation of the documentation for the next Meeting of the Contracting Parties.

Agenda item 6: Other business

31. The participants pointed out that for future meetings it would be desirable to take into consideration the following recommendations:

- (a) The annotated agenda should be more elaborated.
- (b) The secretariat should make every effort to provide the National Co-ordinators with the relevant documentation well in advance of the meeting.

Agenda item 7: Closure of the meeting

32. The meeting unanimously adopted the English and French versions of the Report as well as annexes IV and V.

33. Dr. Keckes addressed the participants and acknowledged the successful work which had been carried out by the Working Group during its first meeting (see annex VI).

34. Mr. Manos thanked the participants for the constructive guidance and advice which they had given to the secretariat on the future development of the MED POL - PHASE II programme.

35. The meeting was closed by the Chairman at 8.30 p.m. on 2 October 1981.

ANNEX I

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LISTE DES PARTICIPANTS

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ANNEX II

AGENDA

1. Opening of the meeting.
2. Organization of the meeting.
3. MED POL - PHASE II: Review of the basic criteria for national monitoring programmes.
4. MED POL - PHASE II: Review of the basic criteria for the development of research activities.
5. Review of the draft Mediterranean Environmental Quality Criteria and Reference Methods for Pollution Studies in the Mediterranean.
6. Other business.
7. Closure of the meeting.

ANNEX III

LIST OF DOCUMENTS

A. Working documents

----- UNEP/WG.62/1	Provisional Agenda
UNEP/WG.62/2	Provisional Annotated Agenda
UNEP/WG.62/3	Basic criteria for the implementation of national monitoring programmes
UNEP/WG.62/4	Basic criteria for the development of research activities
UNEP/WG.62/5	Reference Methods for pollution studies in the Mediterranean
UNEP/WG.62/6	Mediterranean Environmental Quality Criteria
UNEP/WG.62/7	Report of the First Meeting of the Working Group for Scientific and Technical Co-operation

B. Information documents

----- UNEP/WG.62/INF.1	List of documents
UNEP/IG.23/11	Report of the Second Meeting of Contracting Parties to the Convention for the Protection of the Mediterranean Sea Against Pollution and its related protocols and Intergovernmental Review Meeting of Mediterranean Coastal States on the Action Plan (Cannes, 2-7 March 1981)

ANNEX IV

Basic Principles for the Implementation of National Monitoring Programmes

Introduction

The Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution, have the full responsibility of the monitoring activities at the national level (Article 10) of the Convention; article 4) of the Protocol Concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Substances in Cases of Emergency; and article 8) of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources⁷.

The 2nd meeting of the Contracting Parties to the Convention and its related protocols endorsed a Long-term Pollution Monitoring and Research Programme (designated as MED POL - PHASE II), whose basic details were laid down in annex V to the report of that meeting (UNEP/IG.23/11).

UNEP, responsible to the Contracting Parties for the overall co-ordination of the activities and for their harmonization in the various regional seas will assist the Governments through the Mediterranean Co-ordinating Unit (MED UNIT) to organize their national monitoring programmes.

Taking into account the previous terms of reference, as well as the experience gained through the pilot phase of the Mediterranean Pollution Monitoring and Research Programme (MED POL - PHASE I) the MED UNIT, in close collaboration with the Co-operating Agencies (WHO, FAO, IAEA, IOC, WMO and Unesco), has prepared the present document aiming at the establishment of general principles applicable, in greater or lesser extent to all the Mediterranean countries.

The present document contains a draft Agreement (annex I) to be signed between each of the Governments and UNEP; an outline of Technical Annex (annex II), which, on completion, should contain the modalities of the technical co-operation between each of the Governments and UNEP, and constitute the corresponding National Monitoring Programme; and the Guidelines for the Preparation of the Technical Annex (annex III), which were prepared on the basis of the experience gained through the pilot phase of MED POL as well as on the requirements of the Convention for the Protection of the Mediterranean Sea against Pollution and related Protocols (Land-based Sources, Dumping and Emergency Protocols).

The First Meeting of the Working Group for Scientific and Technical Co-operation (WGSIC) should carefully review the present document and make recommendations for the implementation of the monitoring activities. The MED UNIT shall subsequently prepare, in order to assist the Mediterranean

Governments, detailed proposals for each individual National Monitoring Programme which shall then be studied and further elaborated by the competent national authorities in charge of the implementation of the monitoring activities. The MED UNIT and the Co-operating Agencies will be ready, at any time, to assist the National Co-ordinators in this task. Signature of the Agreement should immediately follow the acceptance of its Technical Annex by the respective Government and UNEP. It should be possible to begin these activities during 1982.

National Monitoring Programme

The National Monitoring Programmes should be organized in such a way that allow the Contracting Parties to further the goals of the Convention and to successfully implement the environmental assessment required by the Protocols.

These objectives shall be achieved through the periodic evaluation of the information provided by the Parties on the sources, amounts, levels, trends, pathways and effects of pollutants in the Mediterranean. This information shall be systematically collected, analysed and reported using commonly agreed methods.

In addition to the monitoring, the research activities should facilitate the involvement of the scientific community in the monitoring activities and thus to give scientific value to the data produced, providing real scientific insight into the role of pollutants in the marine system and the mechanisms which control the system itself. It should also contribute to the improvement of the programmes and monitoring methods and to develop the scientific capabilities of various Mediterranean countries which are still behind the average in their technological capabilities.

The National Monitoring Programmes will include a workplan for the monitoring of the sources and of the coastal, and reference areas clearly stating geographic boundaries, sampling sites and frequency, analytical techniques, equipment available and its current state, sea-going facilities, institutional arrangements and any other relevant information including financial and human resources and national and international contributions in kind or in cash.

General Co-ordination

The co-ordination of the MED POL - PHASE II monitoring activities will be carried out by the MED UNIT as part of its responsibilities. In addition, the MED UNIT will be responsible:

1. in consultation with the Co-operating Agencies, for the day-to-day co-ordination of the work carried out by the national collaborating MED POL institutions;

2. in consultation with the relevant Co-operating Agencies, for the collection, evaluation, processing and dissemination of the results of the MED POL - PHASE II and the assessment of the state of pollution in the Mediterranean Sea;
3. in consultation with the relevant Co-operating Agencies, for the convening of the Working Group on Scientific and Technical Co-operation (WGSIC) and of groups of experts, either periodically or on an ad hoc basis, to assist in the analysis, integration and interpretation of MED POL - PHASE II data;
4. for the overall guidance on the data quality control and on the maintenance service organized and carried out by the competent Co-operating Agencies or selected national institutions.

National Co-ordination

The co-ordination of the national monitoring activities will be carried out by the National Co-ordinators for MED POL as indicated in paragraph 45 of UNEP/IG.25/11 and recommended in Annex V to the same document. More specifically the National Co-ordinators for MED POL will:

1. ensure the implementation of the national monitoring programme and co-ordinate the efforts of the designated MED POL collaborating institutions in carrying out the monitoring.
2. designate national research centres and organizations to be considered as MED POL collaborating institutions to participate in the monitoring programme and to be considered for the research activities.
3. channel all formal communications between the Co-ordinating Unit of the Mediterranean Action Plan and the national MED POL collaborating institutions and report to the Co-ordinating Unit the progress achieved by the national monitoring programme according to the agreed format and schedule.
4. provide the Co-ordinating Unit with the data submitted by the national MED POL collaborating institutions, ensuring the compliance with the agreed formats and schedules.
5. assess and report as required on the overall amounts of pollutants discharged and dumped from all national sources.
6. assess and report on the state of pollution in the areas monitored by the national MED POL collaborating institutions.

7. be a member of the Working Group on Scientific and Technical Co-operation (WGSIC) that will advise the Co-ordinating Unit on technical and policy matters related to the Monitoring and Research Programme, review the technical reports prepared by the Co-ordinating Unit and prepare relevant recommendations before submission to the Contracting Parties.

Assistance

Direct assistance in the fields of science, education and technology related to MED POL - PHASE II will be provided as described in the following paragraphs (Annex V, document UNEP/IG.23/11):

Individual and collective training will be provided for scientists and technicians in techniques (methods) required for their effective participation in monitoring and research envisaged in the framework of MED POL - PHASE II. This assistance will be in the form of fellowships, experts, workshops, seminars, study tours, grants for attendance at meetings, etc., and will cover training in analytical and sampling techniques, data processing, interpretation of results and various research topics.

Training for technicians and administrators will be organized in order to facilitate the application of the Land-based Sources and Dumping Protocols. The forms of training will be similar to those mentioned in the preceding paragraph.

A quality control programme will be a part of MED POL - PHASE II to ensure the highest degree of quality and of comparability of data. The national research centres participating in monitoring will receive standards and reference substances enabling them to participate in the continuing Mediterranean and global intercalibration exercise. Weaknesses detected through the quality control programme will be corrected through additional training and technical assistance, whenever necessary.

The common maintenance services for the sophisticated analytical equipment (atomic absorption spectrophotometers, gas chromatographs, etc.) developed during MED POL - PHASE I, will remain at the disposal of participants in PHASE II thus enabling the equipment used by national research centres to function properly.

As required and to the extent possible, standardized material and some equipment will be put at the disposal of national centres participating in MED POL - PHASE II to make it possible for them to participate fully in the monitoring and/or research programme.

Guidelines for the Preparation of National Monitoring Programmes

Introduction

Several types of monitoring will be undertaken, all contributing to the fulfilment of the principles on which MED POL II was elaborated and which have been endorsed by the Second Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against pollution and its related protocols and Intergovernmental Review Meeting of Mediterranean and Coastal States on the Action Plan, Cannes, 2 - 7 March 1981, UNEP/IG.23/11, Annex V.

- A. Monitoring of source of pollution to provide information

on the type and amount of pollutants reaching the marine

environment from coastal sources

- B. Monitoring of the coastal waters, including estuaries, within

the limits defined by article 1 of the Barcelona Convention and

by article 3 of the Land-Based Sources Protocol, under the

direct influence of pollutants from identifiable primary

(e.g. outfalls, discharges or coastal dumping points) or

secondary (rivers and other watercourses) sources

- C. Monitoring of reference areas, as defined by article 1 of

the Convention, which are not under direct influence of

pollutants from identifiable primary or secondary sources

- D. Monitoring of the transport of pollutant to the Mediterranean

Sea through the atmosphere

Monitoring D is intended to assess the transport of pollutant mainly from diffuse, mostly land-based, sources through the atmosphere and into the sea, though the reverse process should not be neglected. It will be

implemented after achieving some preparatory activities, considered for the time being as part of the research topics whose development is described in document UNEP/WG.62/4.

The following guidelines are intended to provide the National Co-ordinators for MED POL with common criteria on which to base the preparation and implementation of their National Monitoring Programmes. They were prepared by the Mediterranean Co-ordinating Unit (MED UNIT), in close collaboration with the various Co-operating Agencies (WHO, FAO, IAEA, IOC, WMO and Unesco), on the basis of previous experience gained through the pilot phase of MED POL; the indications given by the Meeting of Experts to Evaluate the Pilot Phase of MED POL and to Develop a Long-term Monitoring and Research Programme for the Mediterranean Action Plan, Geneva, 12-16 January 1981, as adopted by the Second Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its related protocols, Cannes, 2-7 March 1981 (UNEP/IG.25/11, Annex V), and taking into account the requirements of the Dumping, Emergency and Land-Based Sources Protocols. Entries in these Guidelines are marked in the same way as the corresponding entries in the Technical Annex.

MONITORING OF SOURCES OF POLLUTION TO PROVIDE INFORMATION ON
THE TYPE AND AMOUNT OF POLLUTANTS REACHING THE MARINE ENVIRONMENT
FROM COASTAL SOURCES

A.1 Selection of sources of pollutants which shall be monitored

Selection of the sources of pollution to be monitored should fulfill the following two objectives:

- Assessment of overall pollutant load reaching the Mediterranean from land-based sources and through dumping operations, to determine the long-term trends of the general pollution situation in the Mediterranean.
- Measurement of amounts of pollutants discharged through point sources into the Mediterranean to determine, as far as possible, the levels of pollution along the coasts and to evaluate the effects of the preventive measures taken.

The first objective requires that all inputs from major identifiable sources be assessed using available information relevant to the pollutant release into the environment. In particular, dumping operations (A.1.1.1), and discharges made at the coastline from land-based sources (A.1.1.2) should be identified through authorizations and special or general permits granted. The actual amounts of pollutants discharged will be estimated through the annual reports.

The second objective requires that all major identifiable sources be monitored by measuring actual pollutant concentrations. These measurements should be made primarily in the outlets of the major urban agglomerations in coastal areas (A.1.2.1), as well as in major industrial effluents (A.2.3) and in the wastes dumped.

The main Mediterranean rivers and the urban agglomerations whose population exceeds 100,000 are listed in tables 1 and 2.

A.2 Parameters which shall be monitored

For the assessment of the total pollutant load reaching the Mediterranean Sea, all those substances listed in Annexes I and II to the Land-Based Sources and Dumping Protocols will be taken into account as required.

The parameters listed in Table 4 were identified among the substances listed in Annexes I and II of the above-mentioned protocols for monitoring of effluents (A.2.2). Priority will be given to the first three categories of parameter, (namely total mercury, total cadmium and petroleum hydrocarbons). High-molecular weight chlorinated hydrocarbons may be added to the priority parameters in the national monitoring programmes.

A.3 Working schedule

An assessment of the pollution load reaching the Mediterranean Sea will be carried out in 1982.

For the monitoring of effluents a study of the production cycle giving rise to the pollutants in the effluents in question shall be made before a definitive sampling schedule is adopted.

A.4 Institutional arrangements

The National Co-ordinators should communicate to the MED UNIT the names of the institutions and/or of the persons in charge of the assessment of the pollutant load and the monitoring of sources. A clear indication of their respective functions should be given by entering the corresponding number in the Table under A.2.2 of the Technical Annex.

A.5 Sampling and analytical techniques

Sampling and analytical techniques used in the monitoring will be based on reference methods suggested by the MED UNIT in co-operation

with the Collaborating Agencies. Other methods might also be used provided they give equivalent and comparable results, and are subject to intercalibration exercises.

A.6 Data and progress reporting

An inventory of the major sources of pollution with complementary information, stating the type and amount of pollutant discharged, treatment given to the discharges, etc., should be reported to the MED UNIT by the end of 1982. An up-dating of this inventory, including all the new authorizations granted should be prepared at the end of each calendar year. (Art. 13.2 LBS Protocol).

All special dumping permits granted should immediately be reported to the MED UNIT and all general dumping permits granted should be reported to the MED UNIT at the end of each calendar year. (Art. 14.2 Dumping Protocol).

Information regarding the actual amounts, nature of the wastes, or other matter dumped under each of the special and general permits, and the actual location and method of dumping should be reported to the MED UNIT at the end of each calendar year.

Data from monitoring of effluents should be reported to the MED UNIT through the National Co-ordinator (or directly, if so decided by the latter) as soon as they are available.

Reports assessing the overall amounts of pollutants discharged and/or dumped during the corresponding period by each country should be reported to the MED UNIT by National Co-ordinators before the end of each calendar year.

All forms for reporting of dumping permits and dumping operations, for direct monitoring data reporting and for overall pollutant load reporting, will be provided by the MED UNIT according to the agreed formats.

B. MONITORING OF THE COASTAL WATERS, INCLUDING ESTUARIES, WITHIN THE LIMITS DEFINED BY ARTICLE 1 OF THE BARCELONA CONVENTION AND BY ARTICLE 3 OF THE LAND-BASED SOURCES PROTOCOL, UNDER THE DIRECT INFLUENCE OF POLLUTANTS FROM IDENTIFIABLE PRIMARY (e.g. OUTFALLS, DISCHARGE OR COASTAL DUMPING POINTS) OR SECONDARY (RIVERS AND OTHER WATER COURSES) SOURCES

B.1 Selection of Areas and stations to be monitored

Monitoring of coastal marine environment requires a good knowledge of the local conditions: location and characteristics of the pollution sources, ecological characteristics, under the various prevailing oceanographic and meteorological conditions.

This monitoring should be carried out notably in:

- Areas obviously subject to larger inputs of exogenous agents (large estuaries, industrial/port areas);
- areas of special biological or hydrographic interest (bays and shellfish growing areas);
- areas apparently free of any pollution and intended to serve as control areas.

A list of the coastal areas to be monitored in each country will be prepared by the National Co-ordinator of MED POL for that country, if necessary in consultation with the MED UNIT.

The sampling stations in each area should be sufficient in number and selected taking into account dispersion processes (plumes) of effluents and water courses and the prevailing meteorological and oceanographic conditions. In estuarine areas, when choosing stations, account should be taken of the coastal lagoons often found in Mediterranean deltas. "Control" stations, where low pollutant levels are expected, should also be selected within each area to be monitored. A detailed description of the areas selected and of the location of the stations should be provided in the Table under B.1 of the Technical Annex, including a map of each area (scale 1:25,000).

B.2 Parameters and matrices which shall be monitored at each of the

areas and stations specified under B.1.

The parameters and matrices selected for mandatory monitoring are those listed in paras. 17 and 19 of Annex V to the report of the Second Meeting of Contracting Parties (Cannes, 2-7 March 1981) for an initial period of 3 years.

Table 5 indicates the parameters and matrices to be monitored, and the proposed sampling depths.

After this time, parameters and matrices to be monitored will include those listed in paras. 18 and 20 of that Annex.

The Table under section B.2 of the Technical Annex should include a list of stations, depths and parameters to be monitored with indication of institution responsible for carrying out the sampling analysis.

B.3 Sampling schedule

B.4 Institutions which will carry out the monitoring

The National Co-ordinators should communicate to the MED UNIT the names of the institutions and/or of the persons in charge of the monitoring of coastal waters. All such institutions should participate in intercalibration exercises.

B.5 Sampling and analytical techniques

Sampling and analytical techniques used in the monitoring will be based on reference methods suggested by the MED UNIT in co-operation with the Collaborating Agencies. Other methods might also be used provide they give equivalent and comparable results, and are subject to intercalibration exercises.

B.6 Data and Progress Reporting

Data should be reported to the MED UNIT through the National Co-ordinator (or directly, if so decided by the latter) as soon as they are available. Progress reports should be submitted to the MED UNIT by the National Co-ordinators at the end of each calendar year. All the reports should be adapted to the formats and guidelines supplied by the MED UNIT.

C. MONITORING OF REFERENCE AREAS, AS DEFINED BY ARTICLE 1 OF THE CONVENTION, WHICH ARE NOT UNDER DIRECT INFLUENCE OF POLLUTANTS FROM IDENTIFIABLE PRIMARY OR SECONDARY SOURCES

C.1 Selection of areas to be monitored

Selection of the areas to be monitored should be made from among those areas identified by the MED UNIT and the Co-operating Agencies, taking into account the areas proposed for the Joint Scientific Programme of ICSEM, which were chosen on the basis of careful considerations of the hydrographic conditions of the Mediterranean Sea (see Table 7). Additional areas could also be included provided that their hydrographical conditions are well known.

C.2 Parameters and matrices to be monitored

Parameters and matrices to be monitored in the open-sea reference areas are those listed in Table 8 (para 24, Annex V, UNEP/IG.23/11).

C.3 Cruise plans

For execution of these activities, research vessels of the Mediterranean coastal States will be used. Since the cost of using oceanographic vessels is high and considerable ship-time is required for executing these activities, it is imperative that the monitoring of reference areas be well co-ordinated with on-going national, bilateral or international programmes. In particular, Spain, France, Italy, Yugoslavia and Greece have already made specific proposals.

The National Co-ordinators of the countries concerned will inform the MED UNIT of the activities planned. The MED UNIT and the Co-operating Agencies will assist in the overall co-ordination of the organization and follow-up of the activities relating to monitoring of reference areas.

Cruise organization will be arranged between interested countries and co-operating agencies and will be co-ordinated by the MED UNIT.

C.4 Participants in the cruise

It is desirable that scientists participating in the monitoring of coastal waters of the various countries concerned participate in the cruises organized for the monitoring of reference areas.

C.5 Sampling and analytical techniques

Sampling and analytical techniques used in the monitoring will be based as far as possible on reference methods provided by the MED UNIT in co-operation with the Co-operating Agencies (see section B.5 above). Other methods might also be used provided they give comparable results and are subject to intercalibration exercises.

C.6 Data and Progress Report

Data will be reported to the MED UNIT as they become available in accordance with formats developed by the MED UNIT. However, reporting of the standard physical and chemical parameters should follow the rules of the International Oceanographic Data Exchange IODE system.

Table 1. Main rivers discharging into the Mediterranean Sea

Egypt		Italy	
- Nile		- Arno	
		- Tevere	
France		- Po	
- Rhône		- Adige	
		Spain	
Greece		- Jucar	
- Akhelos		- Ebro	
- Pinios			
- Aliakmon		Turkey	
- Axios		- Buyuk Menderes	
- Strimon		- Manavgat	
- Nestos		- Seyhan	
- Evros		- Ceyhan	
		Yugoslavia	
		- Neretva	

Table 2. Mediterranean cities with population of 100,000 or more

	<u>Population in thousands</u>
Algeria	
- Mostaganem	100
- Oran	465
- Annaba	226
- El Wadjar	192
- Skikda	123
- Alger	1,269
Egypt	
- Alexandria	2,397
- Dumyat	103
- Port Said	310
France	
- Nice	359
- Toulon	184
- Marseille	916
Greece	
- Patras	121
- Athens	2,540
- Thessaloniki	557
Israel	
- Gaza	118
- Tel-Aviv	384
- Jaffa	116
- Haifa	225
Italy	
- Rome	2,874
- Napoli	1,221
- Genova	804
- La Spezia	122
- Pisa	104
- Livorno	178
- Sassari	112

Table 2. continued

	<u>Population in</u> <u>thousands</u>
- Cagliari	238
- Salerno	160
- Messina	263
- Palermo	666
- Bari	380
- Pescara	134
- Ancona	107
- Rimini	125
- Ravenna	138
- Venezia	365
- Trieste	270
- Siracusa	119
- Catania	399
- Reggio-Calabria	177
- Taranto	241
Lebanon	
- Beirut	939
Libya	
- Tarabulus	670
- Misratah	139
- Benghazi	400
Morocco	
- Nador	501
- Al-Hoceima	257
Spain	
- Ceuta	136
- Melilla	134
- Malaga	400
- Almeria	127
- Cartagena	158
- Valencia	714
- Castellon de la Plana	110
- Hospitalet de Llobregat	242
- Barcelona	1,745
- Badalona	202
- Alicante	218
- Palma de Mallorca	262

Table 2. continued

	<u>Population in thousands</u>
Syria	
- Latakia	200
Tunisia	
- Grand Tunis	874
- Sfax	171
Turkey	
- Alexandretta	103
- Hatay	124
- Mersin	152
- Antalya	140
- Izmir	858
Yugoslavia	
- Rijeka	132
- Split	184

Table 3. (Deleted)

Table 4. Parameters to be determined in effluents

Priority parameters

Total mercury (Hg)

Total cadmium (Cd)

Petroleum hydrocarbons (PH)

Other parameters (not in order of priority)

High-molecular weight chlorinated hydrocarbons (HH)

Biochemical oxygen demand (BOD₅)

Chemical oxygen demand (COD)

Total suspended solids (TSS)

Total phosphorus (P)

Total nitrogen (N)

Faecal coliforms (FC)

Detergents (anionic) (DET)

Phenols (index) (PHE)

Total lead (Pb)

Total chromium (Cr)

Total zinc (Zn)

Selected radionuclides (RAD)

Table 5. Parameters and matrices selected for monitoring of coastal waters including estuaries

<u>Matrix</u>	<u>Depth</u>	<u>Parameter</u>						
<u>Estuarine water</u> (E)	- corresponding to Salinity minimum Salinity maximum	(Basic oceanographic and (meteorological observations for (the area (T,S,O., current, wave (state, wind. (Faecal coliforms (FC) (Total mercury (Hg) (Total cadmium (Cd) (High-molecular weight halogenated (hydrocarbons (HH) (Total phosphorus (P) (Total nitrogen (N) (Biochemical oxygen demand (BOD ₅) (Chemical oxygen demand (COD)						
		<u>Coastal water</u> (C)	- surface film - 0-20 cm - 1 m - 2 - 3 m - stand. depths	(Basic oceanographic and (meteorological observations for (the area (T,S,O, current, wave (state, wind. (Oil slick observations (OS) (FC (Tar ball collections (TR) (Petroleum hydrocarbons dissolved/ (dispersed in water (PH) (FC (Standard physical and chemical (parameters (SP&C)(Temperature, (Salinity, etc.)				
				<u>Suspended matter</u> (SM) (in estuaries)	- corresponding to Salinity minimum Salinity maximum	(Hg (Cd (HH (P (N		
						<u>Sediments</u> (SD)	- Top layer	(Hg (HH (PH
								<u>Sea-shore</u> (SS)

Table 5. continued

<u>Biota</u>	<u>Parameter</u>
- <u>Mytilus galloprovincialis</u> (MG), or <u>Mytilus edulis</u> (ME), or <u>Perna perna</u> (PE), or <u>Donax trunculus</u> (DI)	(Hg (Cd (HH (
<u>M. Edulis</u> , <u>P. perna</u> or <u>D. trunculus</u> can only be monitored as alternative species if <u>Mytilus galloprovincialis</u> does not occur in the area.	
- <u>Mullus barbatus</u> (MB), or <u>Mullus surmuletus</u> (MS), or <u>Upeneus molluccensis</u> (UM)	(Hg (Cd (HH
<u>M. surmuletus</u> or <u>U. molluccensis</u> can only be monitored as alternative species if <u>M. barbatus</u> does not occur in the area.	
- <u>Thunnus thynnus</u> (TT), or <u>Thunnus alalunga</u> (TA), or <u>Xiphias gladius</u> (XG)	(Hg (Cd (HH
- <u>Sardina pilchardus</u> (SP) Other clupeids should only be monitored as alternative species if <u>S. pilchardus</u> does not occur in the area.	(Hg (Cd (HH
- <u>Parapenaeus longirostris</u> (PL), or <u>Nephrops norvegicus</u> (NN), or <u>Penaeus kerathurus</u> (PK)	(Hg (Cd (HH

N. norvegicus or P. kerathurus can only be monitored as alternative species if Parapenaeus longirostris does not occur in the area.

In order to allow the comparison of monitoring results, every effort should be made, in consultation with the MED UNIT, to analyze also the respective alternative species if they occur together with the mandatory species in the same area.

If, in an area to be monitored, none of the species listed under each category occur, the MED UNIT should be consulted.

- All edible bivalves (EB)

- FC

Table 6. (Deleted)

Table 7. Reference areas (open-sea) proposed for monitoring

Name of areas

Strait areas

Strait of Gibraltar
Sardinian Channel
Sicilian Channel
Straight of Otranto
Crete west
Crete east

Off-estuary areas

Ebro
Rhone
Po
Nile

Gyre-centre areas

Ligurian Sea
Western Basin
Tyrrhenian Sea
Ionian Sea N
Ionian Sea S
Levantine Basin W
Levantine Basin E

Table 8 Parameters and matrices selected for monitoring of reference areas

<u>Matrix</u>	<u>Depth</u>	<u>Parameter</u>
<u>Water</u> (SW)		(Basic oceanographic and (meteorological observations (for the area (T,S,O, current (speed & direction, wave state, (wind speed & direction)
	- surface film	(oil slick observations (OS)
	- 0 - 20 cm	(tar ball collections (TR)
	- 1 m	(Petroleum hydrocarbons (dissolved/dispersed in (water (PH)
	- stand. depths	(standard physical and chemical (parameters (SP&C)(Temperature, (Salinity, etc.)
<u>Sediments</u> (SD)	- surface layer	(Hg (PH (HH
<u>Biota</u>		
Whenever possible, Table 5 should be followed in selecting the species to be monitored		(Hg (Cd (HH

ANNEX V

Basic Criteria for the Development of Research Activities

Background

The Long-term Programme for Pollution Monitoring and Research in the Mediterranean (MED POL - PHASE II) of the Mediterranean Action Plan (MAP), which was endorsed at the Second Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea Against Pollution and its related protocols, Cannes, 2 - 7 March 1981, defines the research and study topics whose development is required for the successful achievement of the Programme (UNEP/IG.23/11, Annex V, paragraphs 40 - 42).

These activities will be carried out by Mediterranean research centres and organizations primarily on a direct contractual basis or as a contribution from centres and organizations offered by the Contracting Parties to the Convention for the Protection of the Mediterranean Sea Against Pollution and its related protocols (UNEP/IG.23/11, Annex V, paragraph 41).

In addition, the long-term monitoring of the transport of pollutants to the Mediterranean Sea through the atmosphere (UNEP/IG.23/11, Annex V, paragraphs 25 - 29) requires research on the strategy and the methods to be followed before its implementation.

Framework of the research activities

The MAP Co-ordinating Unit (MED UNIT), in close collaboration with the Co-operating Agencies (WHO, FAO, IAEA, IOC, WMO and UNESCO), has defined the research activities to be developed and will be responsible for their overall co-ordination.

The Co-operating Agencies, in consultation with the MED UNIT, will be responsible for the day-to-day co-ordination of the relevant activities.

The Research Centres participating in the research activities will be those designated by the national co-ordinators for MED POL as collaborating MED POL institutions, whether they participate or not in the monitoring components.

The research proposals submitted through the National Co-ordinators for MED POL to the MED UNIT in response to a request having a widespread dissemination or offered as contributions, will have to follow the format outlined in Appendix I.

With regard to the research proposals relevant to the research and study topics selected under the long-term Mediterranean Monitoring and Research Programme (MED POL - PHASE II), the Meeting recommends the adoption of a two-fold approach catering for two kinds of activity.

1. Proposals falling within the context of activities B, C and E will have to be referred for approval to the Working Group for Scientific and Technical Co-operation.
2. Proposals falling within the context of the other activities may be undertaken by the Co-ordinating Unit for a transitional period of one year.

During this period, the Unit shall provide all National Co-ordinators with a list of studies undertaken, the names of the institutions selected, and the amounts granted.

The Meeting also recommends that the costs of the work undertaken for each study should be borne for the main part by the participating institutions.

Assistance will, however, be treated as a priority criterion, in accordance with the Cannes conclusions (UNEP/IG.23/11, Annex V, paragraph 44), as also geographical distribution.

The Co-ordinating Unit has been requested to provide the National Co-ordinators for MED POL with details of the agreements between the Unit and the Co-operating Agencies concerning MED POL - PHASE II.

Results

The results of research activities developed as part of MED POL - PHASE II should be, as a general rule, submitted for publication to scientific journals having a widespread circulation and preferably in one of the MAP working languages (English and French).

In addition, it is highly desirable that preliminary findings also be reported and discussed at international workshops, seminars and symposia, especially those having a large Mediterranean audience such as the series of ICSEM/UNEP joint Workshops on Pollution of the Mediterranean Sea.

Administrative and scientific reports should be submitted at the end of the period proposed for the completion of the work or every six months when the work extends beyond this limit.

Activities to be undertaken

Following the proposed research and study topics defined in the Long-term Programme for Pollution Monitoring and Research in the Mediterranean (MED POL - PHASE II) (UNEP/IG.23/11, Annex V, paragraph 42), twelve research activities have been defined under Sections A to L below:

ANNEX VI

Closing remarks of Dr. Stjepan Keckes at the First Meeting of the
Working Group for Scientific and Technical Co-operation

Mr. Chairman, ladies and gentlemen:

Although some of you might have had the feeling that the difficulties in launching the second phase of MED POL were insurmountable, I am sure that you will leave this meeting with the feeling that a big step has been successfully taken. After all, this is only the first meeting of the Working Group and we are happy to see the good working relationship established between the group and UNEP through our MED UNIT. The Unit needs your trust, it needs your understanding and it needs your help.

By proposing to the Contracting Parties the establishment of the Working Group, the secretariat felt that the mechanism for the formulation of qualified advice on all matters related to MED POL would be created. Our expectations seem to be justified by the responsible way you have considered during this meeting the plans formulated by the MED UNIT.

Nevertheless, Mr. Chairman, I feel that there is a need to clarify UNEP's interest in the future development of the Mediterranean Action Plan and, consequently, the financial support you may expect from UNEP in the future.

UNEP, being a global, international organization, has an interest in the Mediterranean Action Plan primarily as part of its global programme. More specifically, the MED POL is the most important component of the Mediterranean Action Plan as far as UNEP's global mandate is concerned as it contributes to the Global Environment Monitoring System (GEMS).

The financial assistance provided by UNEP in the past (more than US\$ 9 million) and the contributions in kind and services provided by other components of the United Nations system (estimated at about US\$ 2 million) were always contingent on the relevance of the Mediterranean Action Plan to the global responsibilities of the United Nations bodies supporting it. In this context, the Mediterranean Action Plan, and MED POL in particular, were seen as a pilot project of UNEP's Regional Seas Programme and as the marine component of GEMS.

UNEP's financial contribution to the Mediterranean Action Plan in 1981 is at the level of US\$ 300,000 and an estimated contribution of US\$ 100,000 is offered in kind and services by the co-operating agencies of the United Nations system. In view of the financial difficulties of the Mediterranean Action Plan, due to the late receipt of contributions from your Governments to the Trust Fund, UNEP may consider increasing its contribution in 1981

from US\$ 300,000 to US\$ 500,000. These contributions obviously make UNEP and the specialized agencies a "major shareholder" in the Mediterranean Action Plan, and we feel that they fully justify our attempt to influence the contents and implementation of MED POL so that it could become an integral part of our global programme. In other words, we would like to be considered not only as the secretariat of the Contracting Parties but also as a full partner in what we, in UNEP, consider a programme of mutual interest.

Our primary interest in MED POL is centred on two matters:

- Continued collection of data relevant to the quality of the Mediterranean as the basis for the assessment of the state of pollution in the Mediterranean basin;
- Development and harmonization of methods applicable in marine pollution studies.

As a contribution to GEMS we are determined to complete the assessment of the environmental quality of the Mediterranean and we are going ahead with the development and harmonization of methods which may be used for marine pollution studies in the ten regions covered by our Regional Seas Programme. Consequently, in determining the extent of our future financial assistance to the Mediterranean Action Plan, we shall keep in mind how these two activities could be carried out through the Mediterranean Action Plan.

I trust that you share our view that the Mediterranean Action Plan represents a programme in which the general interests of the Contracting Parties to the Barcelona Convention and of UNEP coincide and that the specific interests of the Contracting Parties and UNEP can be mutually respected by both sides.

By consenting to serve as the secretariat of the Barcelona Convention and of the Mediterranean Action Plan, UNEP agreed to co-ordinate the implementation of a regional programme under the authority of the Contracting Parties, subject to the compatibility of this programme with UNEP's mandate as defined by the General Assembly of the United Nations and by UNEP's Governing Council. The financial resources available for this programme are the resources pledged by your Governments to the Mediterranean Trust Fund and other specific contributions made by any of the Contracting Parties towards the costs of the Mediterranean Action Plan. UNEP's financial contribution to the implementation of the Action Plan is, as you are aware, not part of the Mediterranean Trust Fund and is provided principally to further UNEP's global goals through this regional programme.

Mr. Chairman, in order to avoid any misinterpretation of my intervention, we shall attach its full text as an annex to the report of this meeting.

Mr. Chairman, allow me to end my closing remarks by congratulating you, and through you, the Bureau elected by this meeting, on the efficient way the meeting has been conducted. I would also like to thank the members of the Working Group, the experts and the representatives of the Co-operating Agencies, as well as all those who contributed to the success of the meeting. I hope that all of you share our satisfaction with the results achieved and we in the secretariat look forward to continued co-operation with the Working Group in the same constructive spirit that has prevailed at this meeting.

ANNEX VII

The following is the text of Annex V to the report of the second meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against pollution and its related protocols, Cannes, 2 - 7 March 1981 (UNEP/IG.23/11).

BACKGROUND

1. The pilot phase of the Co-ordinated Mediterranean Pollution Monitoring and Research Programme (MED POL - PHASE I) was initiated in 1974 and formally approved by the Intergovernmental Meeting on the Protection of the Mediterranean Sea (Barcelona, 28 January - 4 February 1975) as the scientific/technical component of the Mediterranean Action Plan.
2. Initially it consisted of seven pilot projects (MED POL I - VII), which were later expanded by an additional six pilot projects (MED POL VIII - XIII), some of which remain in a conceptual stage only. It was based on the work of 83 national research centres designated by 16 Mediterranean States, and the EEC, as participants in co-operative networks and on the input of eight United Nations organizations (ECE, UNIDO, FAO, UNESCO, IOC of UNESCO, WHO, WMO, IAEA), IUCN and ICSEM. The over-all co-ordination and guidance for MED POL - PHASE I was provided by UNEP, acting as the secretariat of the Mediterranean Action Plan.
3. The general objectives of the MED POL - PHASE I, evolved through a series of expert and intergovernmental meetings, were:

To formulate and carry out a co-ordinated pollution monitoring and research programme taking into account the goals of the Mediterranean Action Plan and the capabilities of the Mediterranean research centres to participate in it;

To assist national research centres in developing their capabilities to participate in the programme;

To analyse the sources, amounts, levels, pathways, trends and effects of pollutants relevant to the Mediterranean Sea;

To provide the scientific/technical information needed by the Governments of the Mediterranean States and the EEC for the negotiation and implementation of the Convention for the Protection of the Mediterranean Sea against Pollution and its related protocols;

To build up consistent time-series of data on the sources, pathways, levels and effects of pollutants in the Mediterranean Sea and thus to contribute to the scientific knowledge of the Mediterranean Sea.

4. The results of, and experience gained through, MED POL - PHASE I are reflected in the documents listed in the appendix to this annex.

5. The Intergovernmental Review Meeting of Mediterranean coastal States and First Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution, and its related protocols (Geneva, 5-10 February 1979), having examined the status of MED POL - PHASE I, recommended that during the 1979/1980 biennium a long-term pollution monitoring and research programme should be formulated and the present document is a response to this request.

6. The legal obligations of the Contracting Parties to the:

Convention for the Protection of the Mediterranean Sea Against Pollution; adopted at Barcelona, 16 February 1976; entered into force on 12 February 1978;

Protocol Concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency; adopted at Barcelona, 16 February 1976; entered into force on 12 February 1978;

Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources; adopted at Athens, 17 May 1980.

7. Based on the recommendations made at various expert and intergovernmental meetings, this draft long-term (10 years) programme for pollution monitoring and research (MED POL - PHASE II) was formulated by the secretariat of the Convention (UNEP) in co-operation with the organizations which supported the MED POL - PHASE I. Subsequently, it was formally approved by the Second Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its related protocols and the Intergovernmental Review Meeting of Mediterranean coastal States on the Action Plan held at Cannes, 2-7 March 1981.

OBJECTIVES

8. The general long-term objective of MED POL - PHASE II is to further the goals of the Barcelona Convention by assisting the Parties to prevent, abate and combat pollution of the Mediterranean Sea area and to protect and enhance the marine environment of the area. The specific objectives are designed to provide, on a continuous basis, the Parties to the Barcelona Convention and its related protocols with:

Information required for the implementation of the Convention and the protocols;

Indicators and evaluation of the effectiveness of the pollution prevention measures taken under the Convention and the protocols;

Scientific information which may lead to possible revisions and amendments of the relevant provisions of the Convention and the protocols and for the formulation of additional protocols;

Information which could be used in formulating environmentally-sound national, bilateral and multilateral management decisions essential for the continuous socio-economic development of the Mediterranean region on a sustainable basis;

Periodic assessment of the state of pollution of the Mediterranean Sea.

9. These objectives will be achieved through the evaluation of the information on the sources, amounts, levels, trends, pathways and effects of pollutants in the Mediterranean which will be collected, analysed and reported on a systematic basis using commonly agreed methods, and taking into account data available from other sources.

PRINCIPLES

10. The basic principles used in the development of MED POL - PHASE II are listed below:

- (a) Mechanisms which will be used for MED POL - PHASE II related to policy making:

Periodic meetings of Contracting Parties to decide on the programme, approve its budget, review its progress and evaluate its results;

Periodic meetings of the Working Group for Scientific and Technical Co-operation which will consist of national MED POL co-ordinators designated by the relevant national authorities to assist the Contracting Parties in reviewing the progress of the programme and in evaluating the results thereof, and to prepare relevant recommendations for submission, through UNEP as the secretariat of the Convention, to the meetings of the Contracting Parties.

- (b) The monitoring of, and research on, pollutants affecting the Mediterranean marine environment will reflect primarily the immediate and long-term requirements of the Barcelona Convention and its protocols (including those protocols which are in their formative stage) but will also take into account factors needed for the understanding of the relationship between the socio-economic development of the region and the pollution of the Mediterranean Sea.

- (c) The strategy of the programme will be such as to provide information on pollution trends within the Mediterranean recognizing that the dynamics of the system are such that pollution in one area can cause detrimental effects in other areas.
- (d) For this purpose, monitoring will be organized on several levels:
- Monitoring of sources of pollution providing information on the type and amount of pollutants released directly into the environment;
 - Monitoring of nearshore areas, including estuaries, under the direct influence of pollutants from identifiable primary (outfalls, discharge and coastal dumping points) or secondary (rivers) sources;
 - Monitoring of offshore areas (reference areas) providing information on the general trends in the level of pollution in the Mediterranean;
 - Monitoring of the transport of pollutants to the Mediterranean through the atmosphere, providing additional information on the pollution load reaching the Mediterranean Sea.
- (e) Studies and research undertaken in the framework of the programme will be directly relevant to the achievement of the objectives of the programme.
- (f) PHASE II will be based primarily on the experience and results obtained during PHASE I, but will also take into account the experience gained through other large-scale national, bilateral or multilateral research and monitoring programmes carried out in the Mediterranean and in other regions of the world.
- (g) The work will be carried out by national research centres, which will not necessarily have to carry out all the aspects of the programme, in particular those which actively participated in PHASE I, taking into account the need for adequate geographic coverage. These centres will be designated by the relevant national authorities and will be named "collaborating UNEP MED POL centres" after demonstrating their relevant technical competence. Participation of national institutions in the work will be formalized through contracts based on proposals submitted to the Mediterranean Action Plan Co-ordinating Unit in response to requests.
- (h) The results of PHASE II will be collated, processed and disseminated by the unit co-ordinating the Mediterranean Action Plan, in co-operation with the relevant specialized organizations

of the United Nations system. The International Computing Centre (ICC) at Geneva will be used for data processing according to agreed standard practices, making full use of existing mechanisms for data exchange.

- (i) Data generated in PHASE II will be comparable, to the largest extent feasible, with those obtained during PHASE I and with those generated through UNEP-sponsored regional seas programmes in other regions, thus contributing to the Global Environment Monitoring System (GEMS), and furthering the concept of integrated monitoring of the environment. The inter-regional comparability of data will be assured through UNEP's Regional Seas Programme Activity Centre.
- (j) The over-all co-ordination of MED POL - PHASE II will be vested in the Mediterranean Action Plan Co-ordinating Unit, acting on behalf of UNEP (the secretariat of the Barcelona Convention).
- (k) The day-to-day co-ordination of the work carried out by national institutions participating in MED POL - PHASE II will be achieved through the relevant international organizations, under the responsibility of the Co-ordinating Unit.
- (l) Mechanisms which will be used, as appropriate, for the analysis of data and their initial evaluation are:

The unit co-ordinating the Mediterranean Action Plan in co-operation with the international organizations;

The Working Group for Scientific and Technical Co-operation;

Experts, selected by the Co-ordinating Unit in consultation with the international organizations. These experts will act in their personal capacity;

Periodic meetings of scientists participating in the programme to discuss the progress made in the projects and the future programme.

- (m) Financial resources for the implementation of PHASE II are:

- (i) Cash from:

Mediterranean Trust Fund;
UNEP's Fund;
Voluntary contributions.

- (ii) Contributions in kind, services and activities related to the Mediterranean Action Plan from:

Collaborating national centres;
Governments of the Mediterranean States and the EEC;
Specialized organizations participating in the programme.

MONITORING

11. Several types of monitoring will be undertaken, all contributing to the fulfilment of the principles contained in paragraph 10.
 - A. Monitoring of sources of pollution to provide information on the type and amount of pollutants reaching the marine environment from coastal sources.
12. The purpose of this monitoring is to establish the pollution load reaching the Mediterranean Sea and to contribute to the understanding of biogeochemical cycles of pollutants relevant to the Mediterranean Sea. It will cover the:
 - (a) Survey of the type and amount of pollutants discharged directly into the coastal waters from land-based (coastal) sources;
 - (b) Survey of the type and amount of pollutants dumped directly into the sea;
 - (c) Survey of the type and amount of pollutants dumped in emergency or released accidentally into the sea;
 - (d) Assessment of the type and amount of selected substances reaching the sea directly through natural (weathering, hydrothermal, etc.) processes from land-based (coastal) or maritime sources.
13. Pollutants to be monitored include:
 - (a) Pollutants listed in annexes I and II of the Land-Based Sources Protocol (paragraph 12 (a)).
 - (b) Pollutants listed in annexes I and II of the Dumping Protocol (paragraph 12(b)).
 - (c) Pollutants referred to in article 8 and article 9 of the Dumping Protocol (paragraph 12(c)).
 - (d) Pollutants referred to in article 8 of the Emergency Protocol (paragraph 12(c)).
 - (e) Substances which may contribute significantly to the over-all level (concentration) of pollutants in the sea (paragraph 12(d)).
14. The monitoring will be based on:
 - (a) Reports to be submitted by the Contracting Parties according to article 7, article 8 and article 9 of the Dumping Protocol.
 - (b) Reports to be submitted by the Contracting Parties according to article 8 and article 9 of the Emergency Protocol.

(c) Reports to be submitted by the Contracting Parties according to article 6 and article 13 of the Land-Based Sources Protocol.

(d) Reports to be submitted by the Contracting Parties on monitoring of sources for substances which may contribute substantially to the over-all level (concentration) of pollutants in the sea (paragraphs 12(d) and 13(c)). Data will be generated by national research centres designated by their Governments to participate in the programme.

B. Monitoring of the coastal waters, including estuaries, within the limits defined by article 1 of the Barcelona Convention and by article 3 of the Land-Based Sources Protocol, under the direct influence of pollutants from identifiable primary (e.g. outfalls, discharge or coastal dumping points) or secondary (rivers and other water courses) sources.

15. The purpose of this monitoring is to establish the effects of measures taken by Contracting Parties under the Land-Based Sources Protocol (article 8(b)).

16. The monitoring will be carried out by governmentally-selected national research centres to monitor areas within their national jurisdiction for the following parameters (indicators) selected on the basis of:

(a) scientific and economic feasibility;

(b) specific needs of the Mediterranean, i.e. relevance to the annexes I and II of the Land-Based Sources Protocol;

(c) identifiable cause-effect relationship.

17. For general monitoring purposes of coastal waters (i.e. not in the heavily polluted areas in the vicinity of point sources) the following priority parameters (indicators) will be taken into account initially:

Total mercury in organisms and sediments;

Cadmium in organisms;

High-molecular weight halogenated hydrocarbons in organisms and Sediments;

Petroleum hydrocarbons in water, sediments and oil residues (tar-balls) on sea-shores;

Faecal coliforms in recreational waters and edible bivalves;

Basic oceanographic and meteorological conditions.

In addition, standard physical and chemical parameters (salinity, oxygen, temperature, etc.) which may contribute to the interpretation of the results, will be monitored.

18. It is envisaged that, after three years, the following additional parameters (indicators) for monitoring of coastal waters will be added to the list:

Cadmium in sediments;

Organic mercury in organisms and sediments;

Total arsenic in organisms;

Selenium in organisms;

Lead in organisms;

Polynuclear aromatic hydrocarbons in organisms;

Additional organics (such as carcinogenic compounds) in organisms;

Radionuclides in organisms;

Faecal coliforms in sediments;

Pathogens in waters, sediments and bivalves;

Ecological parameters, such as productivity and community structure.

19. Taking into account the specificity of estuaries, the parameters (indicators) to be monitored will initially include:

Total mercury in water and suspended matter;

Cadmium in water and suspended matter;

High-molecular weight halogenated hydrocarbons in water and suspended Matter;

Faecal coliforms in water and suspended matter;

Phosphorus in water and suspended matter;

Nitrogen in water and suspended matter;

BOD₅ in water;

COD in water.

20. It is envisaged that, after three years, the following additional parameters (indicators) for monitoring of estuaries will be added to the list:

Total arsenic in water and suspended matter;

Organic mercury in water and suspended matter;

Selenium in water and suspended matter;

Lead in water and suspended matter;

Polynuclear aromatic hydrocarbons in water and suspended matter;

Radionuclides in water and suspended matter;

Oil residues in water and suspended matter;

Pathogens in water;

Phenols in water.

C. Monitoring of reference areas, as defined by article I of the Convention, which are not under direct influence of pollutants from identifiable primary or secondary sources.

21. The purpose of this monitoring is to provide information on the general trends in the level (concentration) of pollutants in the Mediterranean Sea.
22. The monitoring will be based on the work of governmentally-selected national research centres which will monitor areas falling within their jurisdiction. Monitoring of areas outside of national jurisdiction will be agreed upon jointly by the Governments concerned.
23. The selection of reference areas will take into account the present knowledge of the prevailing conditions and other relevant regional programmes in the Mediterranean Sea.
24. Parameters (indicators) recommended to be monitored in the reference areas are primarily those listed in paragraph 17, with the exception of micro-organisms.

D. Monitoring of the transport of pollutants to the Mediterranean Sea through the atmosphere.

25. The purpose of this monitoring is to establish the input (flux) of pollutants into the Mediterranean Sea through the atmosphere and thus to provide additional information on the pollution load reaching the Mediterranean Sea.
26. The monitoring will be based on the work of national research centres designated by their Governments.
27. The monitoring areas will include (i) areas directly influenced by identifiable sources of air pollution and (ii) reference areas not directly influenced by identifiable sources of air pollution.
28. Monitoring of areas outside of national jurisdiction, or under shared jurisdiction by two States, will be agreed jointly by the Governments concerned.

29. Parameters (indicators) to be monitored will be selected on the basis of their relevance to annex I and annex II to the Land-Based Sources Protocol and of a feasibility study and research which will be carried out.

E. Sampling and analytical techniques.

30. Sampling and analytical techniques used in the monitoring will be based on mandatory reference methods. Other methods could also be used, including remote sensing, subject to a satisfactory intercomparison.
31. Reference methods developed and tested during MED POL - PHASE I include:
- (a) Determination of total mercury in edible tissue of fish by flameless atomic absorption spectrophotometry after liquid pressure decomposition of the organic material;
 - (b) Determination of total mercury in edible tissue of mussels by flameless atomic absorption spectrophotometry after liquid pressure decomposition of the organic material;
 - (c) Determination of DDTs in edible tissues of shrimps and fish by gas-liquid chromatography;
 - (d) Determination of DDTs in edible tissue of mussels by gas-liquid chromatography;
 - (e) Determination of total coliforms in sea-water by the membrane filtration culture method;
 - (f) Determination of faecal coliforms in sea-water by the membrane filtration culture method;
 - (g) Determination of faecal streptococci in sea-water by the membrane filtration culture method;
 - (h) Determination of faecal coliforms in shellfish (bivalves) by the multiple-test-tube method (MPN).
32. Additional reference methods will be developed and tested during MED POL - PHASE II (see paragraph 42(a)).
33. Sampling frequency will depend on the purpose of monitoring.
34. All national research centres will participate in the continuing intercalibration of sampling and analytical techniques or in data quality control programmes.

F. Data analysis and dissemination.

35. Data will be subjected to a preliminary quality control and analysis by the national research centres or other organizations collecting them.
36. Depending on their nature, the data will be reported through the national MED POL co-ordinators, (or directly, if so decided by the latter) in an agreed format and according to an agreed schedule, to UNEP's Mediterranean Action Plan Co-ordinating Unit, or through the Regional Oil Combating Centre or through the the relevant international organizations. On this level, using the computer facilities of the International Computing Center at Geneva, the second analysis of data will be carried out, including the control of their quality, (data validation), and the first integration of data will be achieved on a Mediterranean scale.
37. The Co-ordinating Unit, in consultation with the specialized organizations, may convene groups of experts, either periodically or on an ad hoc basis, to assist in the analysis, integration and interpretation of data, after consideration is given to the possibility of convening meetings of the Working Group for Scientific and Technical Co-operation.
38. Before submitting the data and the reports prepared by UNEP on the basis of these data to the Contracting Parties and other users, they will be reviewed by the Working Group for Scientific and Technical Co-operation.
39. The type of regular reports to be submitted to the Contracting Parties in connection with MED POL - PHASE II are:
 - (a) Type and amount of pollutants directly entering the Mediterranean Sea from land-based sources. The report will be based on the analysis and evaluation of data reported according to the provisions contained in paragraph 14 of this document. It will be submitted to the regular (biennial) meetings of the Contracting Parties.
 - (b) Quality of the marine environment in the areas monitored under MED POL - PHASE II. The report will consist of:

Collated reports on the quality of the areas monitored according to paragraphs 15-29 of this document, as submitted to the Co-ordinating Unit of the Mediterranean Action Plan from the national MED POL focal points in a commonly agreed format;

Analysis, evaluation and interpretation of the results contained in the reports on the areas monitored according to paragraphs 15-29 of this document.

The report will be submitted to the regular (biennial) meetings of the Contracting Parties.

- (c) Results of selected research and study topics as defined in paragraph 42 of this document.
- (d) Periodically updated report on the state of pollution of the Mediterranean Sea, indicating the major environmental problems, general trends in the pollution of the Mediterranean as well as the environmental problems which may face the Mediterranean basin in the future.

RESEARCH AND STUDY TOPICS

- 40. Only research and studies directly relevant to the achievement of the objectives of MED POL - PHASE II are envisaged.
- 41. Research and studies will be carried out by Mediterranean research centres and organizations primarily on a direct contractual basis or as a contribution from centres and organizations offered by the Contracting Parties.
- 42. Research and study topics included initially in the MED POL - PHASE II (sequence does not imply order of priority):
 - (a) Development of sampling and analytical techniques for monitoring the sources and levels of pollutants. Testing and harmonization of these methods at the Mediterranean scale and their formulation as reference methods. Substances listed in Dumping and Land-Based Sources Protocol priorities.
 - (b) Development of reporting formats required according to the Dumping, Emergency and Land-Based Sources Protocols.
 - (c) Formulation of the scientific rationale for the environmental quality criteria to be used in the development of emission standards, standards of use or guidelines for substances listed in annexes I and II of the Land-Based Sources Protocol in accordance with articles 5, 6 and 7 of that Protocol.
 - (d) Epidemiological studies related to the confirmation (or possible revision) of the proposed environmental quality criteria (standards of use) for bathing waters, shellfish-growing waters and edible marine organisms.
 - (e) Development of proposals for guidelines and criteria governing the application of the Land-Based Sources Protocol, as requested in article 7 of that Protocol.

- (f) Research on oceanographic processes, with particular emphasis on surface circulation and vertical transport. Needed for the understanding of the distribution of pollutants through the Mediterranean and for the development of contingency plans for cases of emergency.
- (g) Research on the toxicity, persistence, bioaccumulation, carcinogenicity and mutagenicity of selected substances listed in annexes of the Land-Based Sources Protocol and the Dumping Protocol.
- (h) Research on eutrophication and concomittant plankton blooms. Needed to assess the feasibility of alleviating the consequences and damage from such recurring blooms.
- (i) Study of ecosystem modifications in areas influenced by pollutants, and in areas where ecosystem modifications are caused by large-scale coastal or inland engineering activity.
- (j) Effects of thermal discharges on marine and coastal ecosystems, including the study of associated effects.
- (k) Biogeochemical cycle of specific pollutants, particularly those relevant to human health (mercury, lead, survival of pathogens in the Mediterranean Sea, etc.).
- (l) Study of pollutant-transfer processes (i) at river/sea and air/sea interface, (ii) by sedimentation and (iii) through the straits linking the Mediterranean with other seas.

ASSISTANCE COMPONENT

- 43. In addition to the assistance envisaged through the activities of the Regional Oil Combating Centre, direct assistance in the fields of science, education and technology related to MED POL - PHASE II will be provided as described in the following paragraphs.
- 44. Individual and collective training will be provided for scientists and technicians in techniques (methods) required for their effective participation in monitoring and research envisaged in the framework of MED POL - PHASE II. This assistance will be in the form of fellowships, experts, workshops, seminars, study tours, grants for attendance at meetings, etc., and will cover training in analytical and sampling techniques, data processing, interpretation of results and various research topics.

45. Training for technicians and administrators will be organized in order to facilitate the application of the Land-Based Sources and the Dumping Protocols. The forms of training will be similar to those mentioned in the preceding paragraph.
46. A quality control programme will be a part of MED POL - PHASE II to ensure the highest degree of quality and of comparability of data. The national research centres participating in monitoring will receive standards and reference substances enabling them to participate in the continuing Mediterranean and global intercalibration exercise. Weaknesses detected through the quality control programme will be corrected through additional training and technical assistance, whenever necessary.
47. The common maintenance services for the sophisticated analytical equipment (atomic absorption spectrophotometers, gas chromatographs, etc.), developed during MED POL - PHASE I, will remain at the disposal of participants in PHASE II thus enabling the equipment used by national research centres to function properly.
48. As required and to the extent possible, standardized material and some equipment will be put at the disposal of national centres participating in MED POL - PHASE II to make it possible for them to participate fully in the monitoring and/or research programme.

CO-ORDINATION

49. The periodic meetings of the Contracting Parties will decide on the programme, approve its budget, review its progress and evaluate its results.
50. The over-all co-ordination of MED POL - PHASE II will be ensured by UNEP through the Co-ordinating Unit for the Mediterranean Action Plan, with the assistance of the international organizations. Such co-ordination shall be achieved as economically as possible.
51. A standing Working Group for Scientific and Technical Co-operation will be established by the Contracting Parties to assist them in their review of the progress of the programme and the evaluation of the results. It will advise UNEP on technical and policy matters related to the programme and prepare recommendations for submission through UNEP, as the secretariat of the Convention, to the meetings of Contracting Parties. The Group will consist of national MED POL co-ordinators designated by the relevant national authorities and will meet at least once a year.
52. The data quality control programme (paragraph 46) and maintenance services (paragraph 47) will be organized and carried out by competent international organizations or selected national institutions, including those carrying out these programmes on a global level, under the over-all guidance of the Mediterranean Action Plan Co-ordinating Unit.

53. In addition to the organizations belonging to the United Nations system, the collaboration with other competent international, regional and intergovernmental organizations in the implementation of MED POL - PHASE II will be actively pursued.

BUDGETARY CONSIDERATIONS

54. The financial resources needed for the work envisaged in the framework of MED POL - PHASE II will come from:
- (a) Contracting Parties to the Barcelona Convention (cash contributions through the Mediterranean Trust Fund and contributions in kind through participation of their national institutions);
 - (b) UNEP (cash contributions on a project funding basis and contributions in kind through certain services);
 - (c) National institutions participating in the programme (contributions in kind through services, staff time, etc.);
 - (d) International organizations participating in and supporting the programme (contributions in kind through services, staff time, and activities related to the Mediterranean Action Plan);
 - (e) Voluntary contributions.

APPENDIX

List of selected documents relevant to the development
and results of the Co-ordinated Mediterranean
Pollution Monitoring and Research Programme
(MED POL - PHASE I)

Report of the IOC/GFCM/ICEM International Workshop on Marine Pollution in the Mediterranean (Monte Carlo, 9-14 September 1974), UNESCO 1974.

Project on Pollution in the Mediterranean (Msida, 8-13 September 1975) IOC/MPPP/3, UNESCO 1975.

Report of the FAO(GFCM)/UNEP Expert Consultation on the Joint Co-ordinated Project on Pollution in the Mediterranean (Rome, 23 June - 4 July 1975), FAO 1975.

Report of the WHO/UNEP Expert Consultation on Coastal Water Quality Control Programme in the Mediterranean (Geneva, 15-19 December 1975). EHE/76.1, WHO 1976.

Directory of Mediterranean Marine Research Centres. First Edition UNEP 1976.

Manual of Methods in Aquatic Environment Research. Part 2: Guidelines for the Use of Biological Accumulators in Marine Pollution Monitoring. FAO Fisheries Technical Paper No. 150. FAO 1976.

Manual of Methods in Aquatic Environment Research. Part 3: Sampling and Analysis of Biological Material. FAO Fisheries Technical Paper No. 158. FAO 1976.

Guidelines for Health Related Monitoring of Coastal Water Quality. Report of a meeting of WHO/UNEP Joint Group of Experts (Rovinj, Yugoslavia, 23-25 February 1977). WHO 1977.

Health Criteria and Epidemiological Studies Related to Coastal Water Pollution. Report of a meeting of WHO/UNEP Joint Group of Experts (Athens, 1-4 March 1977). WHO 1977.

Co-ordinated Mediterranean Pollution Monitoring and Research Programme (MED POL) Summary Report of the Mid-term Review Meeting on IOC/WMO/UNEP and IOC/UNEP Pilot Projects, (Barcelona, 23-27 May 1977). IOC-WMO-UNEP/MED-MRM/3. UNESCO 1977.

Guidelines for the Implementation of Pilot Projects MED I and MED VI. Supplements 1 and 3 to IOC-WMO-UNEP/MED-MRM/3. UNESCO 1977.

Manual for Monitoring Oil and Petroleum Hydrocarbons in Marine Waters and on Beaches. Supplement to manuals and guides No. 7. UNESCO 1977.

Mid-term Review of the Joint WHO/UNEP Co-ordinated Pilot Project on Coastal Water Quality Control in the Mediterranean. Report of the meeting of principal investigators of collaborating laboratories (Rome, 30 May - 1 June 1977). WHO 1977.

Coastal Water Pollution Control. Report of a joint WHO/UNEP Workshop (Athens, 27 June - 1 July 1977): WHO 1977.

Manual of Methods in Aquatic Environment Research. Part 4: Bases for Selected Biological Tests to Evaluate Marine Pollution, FAO Fisheries Technical Paper No. 164. FAO 1977.

Selected Bibliography on Studies and Research Relevant to Pollution in the Mediterranean. FAO Fisheries Technical Paper No. 165. FAO 1977.

Directory of Mediterranean Marine Research Centres. Second Edition, UNEP 1977.

Preliminary Report on the State of Pollution of the Mediterranean Sea. UNEP/IG.11/INF.4. UNEP 1978.

Monitoring of Recreational Coastal Water Quality and Shellfish Culture Areas. Report of a joint WHO/UNEP Seminar (Rome, 4-7 April 1978). WHO 1978.

Coastal Quality Monitoring of Recreational and Shellfish Areas (MED VII). Report of a Workshop convened jointly by WHO and UNEP. (Rome, 17-19 January 1979). WHO 1979.

Pollutants from Land-Based Sources in the Mediterranean. (Report prepared in collaboration with ECE, UNIDO, FAO, UNESCO, WHO, IAEA). UNEP/WG.18/INF.4. UNEP 1979.

Manual of Methods in Aquatic Environment Research. Part 5: Statistical Tests. FAO Fisheries Technical Paper No. 182. FAO 1979.

Principles and Guidelines for Discharge of Wastes into the Marine Environment. WHO 1979.

Data Profiles for Chemicals for the Evaluation of their Hazards to the Environment of the Mediterranean Sea. Vols. I and II. IRPTC/UNEP 1979.

Co-ordinated Mediterranean Pollution Monitoring and Research Programme (MED POL). Programme description, UNEP/IG.14/INF.3. UNEP 1979.

Summary Reports on the Scientific Results of MED POL. Parts I, II and III. UNEP/IG.18/INF.3. UNEP 1980.

Selected Bibliography on the Pollution of the Mediterranean Sea (prepared in collaboration with FAO, WHO, IOC, WMO, IAEA and UNEP). (In preparation).

Reference Methods for Marine Pollution Studies in the Mediterranean (prepared in collaboration with FAO, WHO, IOC, IAEA and UNEP). (In preparation).

The State of Pollution of the Mediterranean Sea. Pergamon Press/UNEP (in preparation).