Fifth Meeting of the Working Group for Scientific and Technical Co-operation for MED POL

Athens, 6-10 April 1987

PROGRESS REPORT ON THE IMPLEMENTATION OF MED POL DURING 1986 AND 1987
AND PROPOSED ACTIVITIES AND BUDGET FOR THE BIENNium 1988–1989

In co-operation with:

FAO    UNESCO   WHO   WMO   IAEA   IOC

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INTRODUCTION

1. The present document was prepared for the Fifth Meeting of the Working Group by the secretariat, in close collaboration with the MED POL Co-operating Agencies (FAO, UNESCO, WHO, WMO, IAEA and IOC). The document contains in Section I information on the progress achieved in the implementation of MED POL during the period January 1986 - February 1987 and, in section II, proposed activities and budget requirements for the 1988-1989 biennium.

2. The Working Group is invited to review the contents of the document, to evaluate the achieved results described in section I of this document and to review and adopt the recommendations for the implementation of MED POL activities for the biennium 1988-1989 with their budgetary requirements proposed in section II, for their submission to the Contracting Parties at their next Meeting.

I. ACTIVITIES IMPLEMENTED IN THE BIENNium 1986-1987

Monitoring

3. By the end of February 1987, the secretariat finalized and signed National Monitoring Programmes of ten States (Algeria, Cyprus, Egypt, Israel, Lebanon, Libya, Malta, Morocco, Syria and Yugoslavia). In addition, the description of two new programmes (France including Monaco and Spain) are at the secretariat and await finalization by the respective countries. Italy is expected to transmit its programme to the Unit during 1987. Action was taken by the secretariat in order to finalize agreements with Tunisia, Greece and Turkey through correspondence and personal contacts with the respective National Co-ordinators. The status of the national monitoring programmes is summarized in annex I. The national institutions and the scientists designated by their MED POL Co-ordinators to participate in the monitoring programme are listed in annex II.

4. Annex I also shows the countries that submitted monitoring data. It is worth noting that, among the countries that have not yet signed monitoring agreements, France transmitted data for the years 1983-1984 on basic chemical parameters, heavy metals and halogenated hydrocarbons in seawater samples; Spain transmitted data for the years 1981-1985 on basic chemical parameters, heavy metals and halogenated hydrocarbons in seawater, rivers, organisms and sediment samples. Italy sent to the Unit a summary of microbiological quality of national beaches (1982-1984) according to EEC standards.

5. As in the past, during 1986 the secretariat in close collaboration with the Co-operating Agencies provided assistance either in cash or in equipment and material, to the countries that had signed the monitoring agreement for a total of US $ 340,300. The monitoring assistance was distributed as follows: Algeria: US $ 40,000; Cyprus: US $ 20,500; Egypt: US $ 40,000; Israel: US $ 38,000; Lebanon: US $ 15,000; Libya: US $ 50,000; Malta: US $ 20,000; Morocco: US $ 28,000; Syria: US $ 40,000; Yugoslavia: US $ 48,800. For some countries, as at February 1987, equipment and materials relative to the indicated amounts are still being purchased.
6. As to the implementation of the monitoring of the transport of pollutants through the atmosphere, in addition to the activities carried out by various research proposals under activity 'L' (see paras 50-53), during 1986, as recommended by the Fourth Ordinary Meeting of Contracting Parties (UNEP/IG.56/5, section III, F. 2, activity L) a pilot project on studying air pollutant depositions into the Mediterranean region and pollutant concentrations in air was initiated in the countries where institutions were designated by the respective National Co-ordinators (Algeria, Cyprus, Israel, Italy, Libya, Spain, Tunisia and Yugoslavia). In January 1987 a research institute from France was also designated.

7. The experts nominated for the pilot project were requested to prepare short reviews on national activities in studying and monitoring atmospheric transport and deposition of pollutants into the Mediterranean Sea as well as to submit programme proposals. As at February 1987, two reviews have been received but no project proposals made. In addition, the meteorological offices in the region were also invited to encourage the participation of meteorological institutions in the project.

8. During 1986-1987 three high-volume aerosol samplers and one precipitation collector were provided to four countries (Spain, Greece, Algeria and France) to further participation in the pilot project. One service visit was arranged and another one is being planned to assist in handling sampling equipment.

9. Twenty-six WMO Background Air Pollution Monitoring Network (BAPMON) stations are fully or partly operational in twelve countries in the region with sixteen stations reporting data on precipitation chemistry and three stations on concentrations of suspended particles.

10. A workshop is being held in November 1987 in Yugoslavia to review preliminary results of the pilot project and relevant research on airborne pollution in the Mediterranean region. National activities in the above field, detailed programme proposals and recommendations for future research and monitoring activities will also be considered.

11. As to the preparation of reporting forms for the monitoring data, provisions were made by all Co-operating Agencies, as appropriate, in order to cover the necessary parameters for which forms had not been prepared. The preparation of the missing forms is to be considered in the light of the considerable work ongoing since several years in other regions and organizations. In this connection, the ICES secretariat is also being contacted in order to investigate to what extent the ICES existing forms could be used, as they are or appropriately revised, for MED POL. In particular, the following reporting formats are being prepared: heavy metals, chlorinated hydrocarbons, petroleum hydrocarbons and nutrients in effluents; heavy metals in seawater and sediments; chlorinated hydrocarbons in sediments; microbial contaminants in shellfish; petroleum hydrocarbons in seawater, sediments, tar on beaches, pelagic tar, oil slicks; petroleum hydrocarbons in organisms, and standard physical and chemical parameters (TSO, chlorophyll, wind and currents). In addition, the reporting formats for observations of petroleum hydrocarbons had been prepared and included in the IOC Manuals and Guides used for MARPOLMON-P, covering dissolved/dispersed hydrocarbons, oil slicks, pelagic tar and tar on beaches. These formats are being reviewed and will be used after appropriate revision.
12. As a follow-up to the decisions of the Fourth Ordinary Meeting of the Contracting Parties (Genoa, 9-13 September 1985), the secretariat initiated the process of evaluation of the monitoring component of MED POL (UNEP/TG.56/5 section III, F.1(1)). This was achieved through a small consultation meeting with scientists, the Co-operating Agencies and the secretariat staff, held in Athens, 8-9 January 1987. The conclusions of the consultation were reviewed at the XX Meeting of the Inter-Agency Advisory Committee for MED POL, and were extensively used by the secretariat in the preparation of the recommendations for the 1988-1989 activities appearing in section II of this document.

13. In this connection, three small ad hoc meetings are being held in 1987 on organotin compounds (May/June 1987), organophosphorous compounds (October 1987) and floating/sinking litter (November 1987) in order to agree on the workplans for the implementation of small pilot projects. The pilot projects are considered necessary in order to obtain the relevant data and results which will enable the secretariat to prepare, in close consultation with the Co-operating Agencies, the assessments of pollution by organotin compounds, organophosphorous compounds and floating/sinking litter, requested for the implementation of the Land-based Sources Protocol (UNEP/WG.125/10, annex VIII). The secretariat considers this approach the most appropriate way to obtain data and results on the little known pollutants appearing in the annexes of the Land-based Sources Protocol for which assessments have to be prepared.

14. In the same framework, preparations have been already made to hold a small consultation in 1987 on the problems related to the analysis, processing, utilization and presentation of the monitoring data; in addition, a consultation meeting is being held in October/November 1987 to assess the results of monitoring the pollutants from land-based sources, including the effectiveness and presently used methodology and sampling strategies.

15. The recommendations relevant to the monitoring activities for 1988-1989 appearing in section II are submitted to the Working Group for review and adoption with the view to their transmittal to the Contracting Parties.

**Land-based Sources Protocol**

16. As a follow-up to the timetable of activities approved by the Meeting of Experts on the Technical Implementation of the Land-based Sources Protocol (Athens, 9-13 December 1985) and the Fourth Working Group Meeting, preparations were commenced for the implementation of the activities approved for 1986-1987.

17. The draft glossary of terms was revised and the first substantive edition is submitted as document UNEP/WG.160/Inf.3. The glossary is intended for general guidance on the interpretation of terms used in the Land-based Sources Protocol and its annexes, and revised versions will be prepared from time to time on the basis of comments received.

18. The assessments on the state of pollution of the Mediterranean Sea by (a) used lubricating oils, (b) mercury and mercury compounds and (c) cadmium and cadmium compounds, all including proposed measures for eventual adoption by the Contracting Parties, were completed and are submitted respectively as documents UNEP/WG.160/7, UNEP/WG.160/8 and UNEP/WG.160/9 (see also para 55).
19. A review of the proposed measures regarding microbial pollution of shellfish and shellfish-growing waters was held on the basis of results of studies carried out on the comparability of these with criteria already in force in various countries of the region (including the EEC criteria). Revised proposed measures are submitted in document UNEP/WG.160/10.

20. Some delays were encountered in completion of the questionnaire for the project on pollutants from land-based sources in the Mediterranean (MED POL X Bis), precluding their transmission in 1986. Draft questionnaires are now being completed and will be transmitted to National Co-ordinators for comments.

21. During the first two months of 1987, the necessary arrangements were made for the performance of the activities dealing with (a) evaluation of the benefits and limitations of submarine pipelines, (b) legislative measures regarding the discharge of wastes through submarine outfalls, (c) review of the various types of treatment for wastewaters, (d) identification and categorization of effluents requiring separate treatment and (e) revised guidelines for the discharge of liquid wastes into the Mediterranean. In view of the relationship existing between most of these activities, notwithstanding their separate description in the Land-based Sources Protocol, the activities are being undertaken in such a way as to minimize duplication, apart from taking already-existing work into account. For this purpose, also, arrangements were commenced with PAP/RAC for the study on the comparative efficiency of selected outfall structure in the Mediterranean to be continued within the framework of MED POL.

Research and Study Topics

22. Ninety-two research proposals were received for 1986. According to the subject, they were distributed for analysis to the Co-operating Agencies and, as a result, 148 projects including extensions of previous years' projects, were ongoing during 1986 with a total contribution of US $ 261,800. At the same time, 33 projects were completed in 1986 and final reports are now expected.

23. The Fourth Working Group Meeting had set the deadline for submission of 1987 proposals at 15 September 1986. However, in response to requests from some National Co-ordinators, all the proposals received up to the end of the year were accepted for analysis. Sixty-seven research proposals were received by the Unit and distributed to the Co-operating Agencies for analysis, as appropriate. A full list of all ongoing projects including the 1987 projects still under negotiation and a list showing all the projects completed in 1986 are attached as annex III.
Activity A  (Development and testing of sampling and analytical techniques for monitoring of marine pollutants)

Projects completed in 1986:  4
Projects ongoing in 1986:  14
1986 contribution:  34,500

24. Development of new Reference Methods was solicited from appropriate institutes. Projects on the development and/or revision of microbiological methodology were completed in 1986, others extended, and one new project accepted. The revision of the Reference Method on the determination of arsenic in marine organisms has been published. In addition, three methods on acute toxicity testing, one method on health-related monitoring, one method on statistical analysis and interpretation of microbiological data, and three on determination of pathogenic microorganisms are ready for printing.

25. There are also ongoing projects under this activity dealing with the determination of heavy metals, halogenated hydrocarbons and organophosphorous compounds in marine organisms. Three Reference Methods on acute toxicity testing, based on FAO Manual of Methods in Aquatic Environment Research, Part 10, are ready for printing.

26. GEMS/ is assisting OCA/PAC in reviewing new Reference Methods, as appropriate.

27. An IAEA/FAO/UNEP Workshop on the determination of Hg, Cd and Pb in marine organisms and sediments took place in Monaco (3-6 November 1986) and an intercalibration exercise for the determination of petroleum hydrocarbons was organized by IOC and held in Barcelona, 13-17 October 1986.

Activity B  (Development of reporting formats required according to the Dumping, Emergency and Land-based Sources Protocols)

Projects completed in 1986:  -
Projects ongoing in 1986:  1
1986 contribution:  4,000

28. On the "opening" of this activity, one research project commenced in 1986, dealing with the development of approaches for the continuous assessment of pollution loads.

Activity C  (Formulation of the scientific rationale for Mediterranean Environmental Quality Criteria)

Projects completed in 1986:  -
Projects ongoing in 1986:  5
1986 contribution:  15,500

29. On the "opening" of this activity, research projects commenced in 1986, dealing with intercomparison studies on techniques for monitoring shellfish-growing waters and shellfish, studies related to environmental quality criteria of coastal waters, and development of models for the calculation of the environmental capacity of seawater in the Mediterranean.
Activity D (Epidemiological studies related to Environmental Quality Criteria)

Projects completed in 1986: 3
Projects ongoing in 1986: 13
1986 contribution: 13,000

30. In the part of the activity dealing with the correlation of coastal seawaters quality with health effects, the projects, dealing with (a) pathogenic fungi and (b) epidemiological studies among bathers, have been completed so far.

31. Other ongoing projects deal with the relationships between pathogenic bacteria or viruses and indicator organisms, viral pollution of seawater, and epidemiological studies regarding virus infections contacted from bathing.

32. A consultation meeting on microbial pollution in Mediterranean coastal areas and associated health effects is being held in Athens from 29 June to 3 July 1987. The meeting will review progress in ongoing research projects, and is expected to produce recommendations regarding the need, feasibility and methodology for monitoring specific pathogenic organisms (including viruses), apart from also producing a list of pathogenic organisms which will provide the final input towards the relative assessment document, scheduled for preparation during 1988/1989.

33. In the part of the activity dealing with mercury, the projects dealing with concentrations of total mercury, methylmercury and selenium in marine organisms have been completed. The other ongoing projects deal with the relationship between total mercury and methylmercury concentrations in various species of marine organisms, dietary surveys in selected populations to determine seafood consumption patterns, and human hair analysis in indicated sections of these sample populations.

34. A consultation meeting on health effects of methylmercury in the Mediterranean area was held in Athens from 15 to 19 September 1986. Progress in the whole sub-activity was reviewed, the necessary follow-up agreed upon, and the protocol for epidemiological studies finalized. Evidence was established that two of the main population groups at risk are (a) adult fishermen, and (b) pregnant women, particularly from fishing families. The summary report of the meetig is submitted as document UNEP/WG.160/Inf. 4.

Activity E (Guidelines and criteria for the application of the Land-based Sources Protocol)

Projects completed in 1986: -
Projects ongoing in 1986: 2
1986 contribution: 8,000

35. On the "opening" of this activity, research projects commenced dealing with design of submarine outfalls in the Mediterranean, and studies on used lubricating oils in effluents together with alternative means of disposal.
Activity F (Research on oceanographic processes)

Projects completed in 1986:  -
Projects ongoing in 1986:  16
1986 contribution:  10,000

36. A review of Mediterranean oceanographic processes is in progress and it will be ready by mid 1987. The review includes the preparation of a bibliography which is expected to be ready for publication by mid 1987 in the MAP Technical Reports Series. The projects ongoing during 1986, also include hydrodynamic modeling of various Mediterranean regions.

Activity G (Research on the toxicity, persistence, bioaccumulation, carcinogenicity and mutagenicity)

Projects completed in 1986:  6
Projects ongoing in 1986:  26
1986 contribution:  57,500

37. The topics covered under this activity include the toxicity of oil and oil dispersants, the toxicity of heavy metals mainly mercury and cadmium, the toxicity of organosilicon compounds and the physiological and biochemical effects of PCBs and other pollutants to marine organisms.

38. At present ongoing projects under this activity cover such topics as:

- genotoxicity of mercury and cadmium;
- bioaccumulation of mercury and cadmium in various organs of organisms and in the trophic chain;
- the effect of heavy metals on various physiological and biochemical aspects;
- the toxicity of PCBs and organophosphorous and other pesticides;
- the use of sea urchin gametes in toxicity testing.

39. Three Reference Methods on acute toxicity testing are ready for publication and the Reference Methods on sub-lethal toxicity are being developed (see annex IV).

Activity H (Eutrophication and concomitant plankton blooms)

Projects completed in 1986:  5
Projects ongoing in 1986:  2
1986 contribution:  6,000

40. The subjects dealt with under this activity include eutrophication problems in the port of Algiers, the lake of Tunis, Izmir bay and North and Central Adriatic. The two ongoing projects study the toxic dinoflagellates and the irregular blooms of macro- and micro-plankton.

41. Guidelines for the assessment of receiving capacity of waters for substances inducing eutrophication are being prepared. A meeting is being organized in Bologna, 2-6 March 1987, to adopt guidelines and suggest future course of activity.
Activity I  (Pollution-induced ecosystems modifications)

Projects completed in 1986: 8
Projects ongoing in 1986: 4
1986 contribution: 11,000

42. Under this activity studies were made on the effects of pollution on various marine communities in some coastal areas in Greece, Yugoslavia, Turkey, France, Italy and Lebanon.

43. There are now four ongoing projects in Lebanon and Greece studying pollution effects on ichthyoplankton, zooplankton and benthos.

44. The two main conclusions of the Blanes (Spain) Meeting (7-11 October 1985) (UNEP/WG.160/Inf. 5) were that (a) the FAO Manual on the ecological assessment of pollution effects (prepared during MED POL - PHASE I) needed updating and (b) there was a need for training in methods of data analysis. The FAO Manual is now being revised and a training course is proposed to take place in 1988 on treatment and interpretation of biological effects data.

Activity J  (Effects of thermal discharges on coastal organisms and ecosystems)

Projects completed in 1986: 2
Projects ongoing in 1986: 1
1986 contribution: 3,000

45. Two projects have been completed studying the effects of thermal pollution on marine communities in specific areas of Cyprus and Italy.

46. A new similar project has been initiated in 1986 in Algeria.

Activity K  (Biogeochemical cycles of specific pollutants)

Projects completed in 1986: 5
Projects ongoing in 1986: 13
1986 contribution: 31,000

47. Projects have been completed under this activity dealing with the biogeochemical cycle of mercury and other heavy metals.

48. At present, the ongoing projects cover such aspects as mercury speciation, transformation of organic and inorganic mercury by bacteria, fate of organotin compounds and radionuclides in biota.

49. Projects on survival of pathogens were completed in 1986, and others were commenced. The results of this work will provide an input into the studies on efficiency of submarine outfall structures.
**Activity I** (Pollutant-transfer processes)

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<tbody>
<tr>
<td>Projects ongoing in 1986:</td>
<td>27</td>
</tr>
<tr>
<td>1986 contribution:</td>
<td>34,300</td>
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50. Work is progressing through research projects which deal with pollutant-transfer processes at river/sea and air/sea interfaces, by sedimentation and through the straits. Development of sampling techniques of surface microlayer for petroleum is also progressing through research projects.

51. In June 1986 the national experts designated by the Governments to participate in the pilot project on transport of pollutants through the atmosphere were approached by WMO and asked to propose a workplan relative to the implementation of the project. Information on ongoing national activities was also requested.

52. A workshop on the subject is planned for the end of 1987 (see also para 10).

**Jellyfish programme**

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<tr>
<th>Projects completed in 1986:</th>
<th>-</th>
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<tr>
<td>Projects ongoing in 1986:</td>
<td>24</td>
</tr>
<tr>
<td>1986 contribution:</td>
<td>34,000</td>
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53. All the projects which were part of the jellyfish programme (1984-1986) are completing the work. A small workshop is being organized by the CIMAM, Trieste, in September 1987, during which final reports of the two-year programme will be presented. The secretariat intends to publish the final reports of the programme in the MAP Technical Reports Series. New projects covering the subject of jellyfish are being analysed and the ones which present a regional and not a local interest may be introduced in other research activities, according to the specific topics covered.

**Environmental Quality Criteria**

54. During 1986 the secretariat, in close collaboration with the Co-operating Agencies, continued to work on the preparation of environmental quality criteria, as part of the work programme for the implementation of the Land-based Sources Protocol (see also paras 18, 19).

55. In particular, the following assessments have been prepared and are submitted to the Working Group for analysis: assessment of the state of pollution in the Mediterranean Sea by used lubricating oils and proposed measures (UNEP/WG.160/7), assessment of the state of pollution in the Mediterranean Sea by mercury and mercury compounds and proposed measures (UNEP/WG.160/8), assessment of the state of pollution in the Mediterranean Sea by cadmium and cadmium compounds and proposed measures (UNEP/WG.160/9), assessment of the state of microbial pollution in the Mediterranean Sea and proposed measures for shellfish and shellfish-growing waters (UNEP/WG.160/10), assessment of the state of pollution by petroleum hydrocarbons in the Mediterranean Sea (UNEP/WG.160/11).
56. Efforts have been and are being made by the secretariat to assist all the countries who intend to apply environmental quality criteria. In particular, all the problems related to the application at national level of the criteria already recommended at the Genoa Meeting will be discussed under separate agenda item (see document UNEP/WG.160/4).

Reference Methods

57. Under the over-all co-ordination of the Ocean and Coastal Areas Programme Activity Centre (OCA/PAC) of UNEP, and in close collaboration with the Co-operating Agencies, the work continued on the preparation and updating of reference methods to be used in the monitoring activities. Some information is given in paras 24 and 25 (activity A) and the full list of the methods including their status of development appears in annex IV.

Data collection, analysis and dissemination

58. During 1986 and 1987 data were gathered from countries through their signed national monitoring agreements as well as from countries who had not signed monitoring agreements. In particular, France, Italy and Spain provided the Unit with data obtained through monitoring programmes (see para 3). In addition, data have been collected through research projects, and results are being presented in the MAP Technical Reports Series (see annex V). During 1986 the necessary computer programmes have been prepared at the Unit to achieve the proper processing of the expected data. All the data received have been entered into the data bank of the Unit after a preliminary control of their quality achieved through the results of the intercalibration exercises as well as through accurate analysis of each entry carried out by the competent Agencies. As in the past, the data bank of the Unit has been fully used in the preparation of the various assessments, as requested for the implementation of the Land-based Sources Protocol (UNEP/WG.160/7, UNEP/WG.160/8, UNEP/WG.160/9, UNEP/WG.160/10 and UNEP/WG.160/11).

59. As to the dissemination of data and results, extensive work has been carried out to enable the publishing of several issues of the MAP Technical Reports Series. All MED POL - PHASE I data results have been published and MED POL - PHASE II data results (monitoring and research) have started being processed and published (see annex V).

Intercalibration and quality control of data

60. In order to improve the quality and reliability of analytical data received through the monitoring activities, a survey of the laboratories participating in the mandatory intercalibration exercise was carried out in August 1986 in consultation with the MED POL National Co-ordinators with the aim of enlarging the participation coverage. In addition, individual requests for intercalibration samples were met according to the availability of samples.

61. A new intercalibration exercise was launched by IAEA in August 1986 covering trace metals and organochlorines in organisms with the participation of thirty-four laboratories from ten countries. Replies were expected by December 1986 and the results are at present being analysed (annex VI).
62. In order to make full use of the results of the various intercalibration exercises, contacts were continued with laboratories where the results had shown methodological problems (sampling and/or analysis). The intention of the secretariat is to continue to improve this link with the participating laboratories and to use, whenever needed, the training component of MED POL.

63. During the process of evaluation of the programme and the achievements of the monitoring component of MED POL – PHASE II initiated by the secretariat (see also para 12), it appeared evident that data quality assurance is one of the most important subjects - yet, at present, rather weak - for the success and meaningfulness of the whole component. The secretariat therefore proposes that any effort should be made to strengthen the intercalibration and quality assurance components during the biennium 1988-1989. The relevant recommendations are contained in section II.

**Maintenance**

64. Maintenance services of analytical instruments, organized in collaboration with IAEA's International Laboratory for Marine Radioactivity (ILMR) in Monaco, continued to be provided to the MED POL participating institutions in various countries. In addition to the regular and emergency service visits carried out by the maintenance engineer from ILMR for instruments provided through MED POL, other instruments used for the programme were serviced (annex VII). In addition to laboratory and field instruments, during 1986 the ILMR maintenance engineer was in charge of the maintenance of Wang computers provided to the SPA/RAC in Tunis, RODC in Malta and PAP/RAC in Split.

**Training and Fellowships**

65. Assistance was directly provided to MED POL participants in the form of individual and group training, support for participation at MED POL meetings (workshops and intercalibration exercises) and travel grants for attendance at meetings related to the MED POL programme. The list of those who benefited from MAP support is given in annex VIII.

**Co-ordination**

66. Based on the decisions of the Contracting Parties or of their Bureau, as appropriate, and the guidance provided by the meetings of the Working Group, the overall co-ordination and organization of MED POL continued to be ensured by UNEP, through the Co-ordinating Unit for the Mediterranean Action Plan, as an integral part of UNEP's Oceans and Coastal Areas Programme Activity Centre (OCA/PAC).

67. The monitoring activities of MED POL are co-ordinated by the secretariat directly through contacts with the MED POL National Co-ordinators and with the participation of the relevant Co-operating Agencies (FAO, UNESCO, WHO, WMO, IAEA, IOC).

68. While the overall co-ordination of MED POL research activities rests with the secretariat, the relevant Co-operating Agencies are responsible for the technical implementation of research projects through direct contacts with the national research centres.
69. The active support of and close collaboration with the Co-operating Agencies remained an important factor contributing very significantly to the implementation of MED POL. In addition to the frequent ad hoc contacts between the secretariat and the Co-operating Agencies, two meetings of the Inter-Agency Advisory Committee (IAAC) for MED POL took place between 1986 and 1987, in order to ensure harmonious co-operation in the implementation of MED POL:

- XIX Meeting of IAAC (Athens, 13-17 January 1986): it reviewed the activities carried out during 1985 and the procedure for the implementation of all the actions recommended by the Third Meeting of the Working Group (May 1985), the Fourth Ordinary Meeting of the Contracting Parties (September 1985) and the Meeting of Experts of the Technical Implementation of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources (December 1985).

- XX Meeting of IAAC (Athens, 12-16 January 1987): it reviewed the activities carried out in 1986, evaluated the programme and the results of the first years of MED POL - PHASE II and prepared a workplan and budget for 1988-1989 MED POL activities.

Summary Budget 1986-1987

70. The MED POL budget of expenditures for 1986-1987, approved by the Fourth Ordinary Meeting of the Contracting Parties, appears in annex IX.

II. ACTIVITIES PROPOSED FOR THE BIENNUM 1988-1989

Preliminary evaluation of the MED POL - PHASE II programme

71. As stated in para 12, the secretariat initiated during 1986-1987 the evaluation of the MED POL - PHASE II programme in the light of the first five years of implementation. The process of evaluation is not concluded and will continue in 1987. However, the monitoring component was extensively analysed in its relation to objectives/achievements, and difficulties and weaknesses were identified.

72. The secretariat has conducted this evaluation through numerous discussions with scientists participating in the monitoring activities as well as MED POL National Co-ordinators in the course of meetings, country visits, personal contacts. Another important mechanism used was the regular meetings of the Inter-Agency Advisory Committee as well as the normal day-to-day collaboration with the Co-operating Agencies. This mechanism proved to be very effective considering that the Co-operating Agencies' staff are both in close contact with the scientists working in MED POL and, through their organizations, aware of other similar programmes in other regions with comparable aims and objectives. In addition, a small consultation meeting was held in January 1987 with experienced scientists during which the initial objectives of MED POL, the modalities for their implementation and the results so far achieved were thoroughly reviewed.
73. The overall approach adopted by the Contracting Parties at their second ordinary meeting in Cannes (UNEP/IG.23/11, annex V) is considered still adequate in its administrative and scientific aspects for the achievement of the general objectives of MED POL - PHASE II and therefore should be continued. In general terms, no changes are proposed in the mechanisms used for the co-ordination of the MED POL activities, including the role of, and the contacts with, the MED POL National Co-Ordinators.

74. Closer contacts are proposed between institutions from different countries participating in the programme with the aim of stimulating collection and analysis of data and launching long-lasting scientific collaboration. An increase in the budget for direct assistance to the countries is also proposed in order to help more effectively their active participation in the programme and the production of data and results.

75. Considering the workplan for the implementation of the Land-based Sources Protocol (UNEP/WG.125/10, annex VII and VIII), it appeared that for some of the substances listed in the black list there are no data available in the Mediterranean to enable the preparation of pollution assessments. In addition, the secretariat feels that it would not be feasible to propose the monitoring of those substances in the framework of MED POL, mainly due to methodological difficulties. As a result, the secretariat proposes the starting of small pilot monitoring exercises using selected institutions to identify the appropriate methodology and start the collection of data. This will enable the preparation of pollution assessments and at the same time, at the end of the pilot exercises, the substances may be introduced in the MED POL programme as new parameters, if necessary.

76. Minor changes are proposed in the selection of parameters, mainly on the basis of the experience gained during the first five years of MED POL and of the requirements of the Land-based Sources Protocol implementation.

77. With the collection of more numerous data from the MED POL - PHASE II monitoring programmes, the secretariat considers data quality assurance as one of the most important topics to develop further, if the data gathered are to be processed and utilized. The quality of data is still relatively low because the existing mechanisms in MED POL are either insufficient or not fully utilized. It is therefore proposed to considerably expand this component by continuing the launching of intercalibration exercises for mandatory parameters, making full use of the training component, launching joint monitoring exercises and organizing between participating institutions exercises of intercomparisons of results of split samples, including sampling and analysis.

78. In view of its close relationship to the monitoring component, a preliminary evaluation was also made of the research component of MED POL - PHASE II, particularly on the best possible utilization of the limited funds allocated to this component. This evaluation has indicated that, at least during the biennium 1988-1989, no changes in the approved topics need be formally made. However, within the framework of the present structure, priority should be accorded to topics of specific relevance to the Mediterranean and not to those of more general relevance which are, or have already been the subject of independent study. Results of ongoing studies in other regions should also be used in support of the MED POL monitoring programme in order to avoid duplication of effort and ensure the best possible use of available resources.
79. What is described above in paragraphs 71-78 represents, in the view of the secretariat, the result of the preliminary evaluation of the MED POL programme. The above concepts, plus others which are still the same as utilized into the ongoing MED POL programme, are translated in the detailed activities and budget contained in the recommendations for the biennium 1988-1989 here below.

Recommendations

80. On the basis of the results of the evaluation of the first years of the MED POL - PHASE II programme which the secretariat started during 1986-1987, the following is proposed for the implementation of MED POL during the biennium 1988-1989:

81. Monitoring (general)

(a) continuation of negotiations with the MED POL National Co-ordinators in order to increase the contributions to MED POL - PHASE II through their MED POL National Monitoring Programmes or other monitoring programmes; specific efforts will be made to improve the presently still incomplete coverage of the Mediterranean and to achieve a more efficient and meaningful regular reporting on the obtained results;

(b) continuation of contacts with national research centres designated as participants in the monitoring activities of MED POL - PHASE II in order to facilitate their participation in the programme;

(c) continued support to the participants in MED POL through the common maintenance service, provision of equipment, training and fellowships to national research centres and scientists, at the request of, and in consultation with, MED POL National Co-ordinators in the States with signed National Monitoring Programmes;

(d) sponsorship of the participation of Mediterranean scientists/experts in meetings organized by other bodies on subjects relevant to monitoring activities of MED POL including the IX ICSEM/IOC/UNEP Workshop on Marine Pollution;

(e) stimulation of the creation of long-term relations between more developed institutes from the northern Mediterranean and institutes from the southern Mediterranean through joint projects and exchanges of visiting scientists in order to stimulate collection and analysis of data and launch a long-lasting scientific collaboration;

(f) continue the evaluation of the monitoring component of the MED POL programme through:

- a meeting of responsible investigators in monitoring programmes (1988);
- ad hoc consultation meetings on monitoring (1988, 1989);
- Inter-Agency Advisory Committees (1988, 1989);
82. **Selection of parameters**

On the basis of the experience gained during the first five years of implementation of the monitoring component of MED POL - PHASE II as well as the general objectives of MED POL and the specific needs of the Land-based Sources Protocol, the parameters agreed at the Second Meeting of the Contracting Parties (see annex X) are proposed to be continued with only minor changes, as follows:

(a) **Parameters to be determined in effluents:**

- **Priority parameters:**
  - Total mercury;
  - Total cadmium;
  - Total suspended solids;
  - Total phosphorus;
  - Total nitrogen;
  - Faecal coliforms;
  - Volume and characteristics of discharge.

- **Other parameters:**
  - Petroleum hydrocarbons;
  - High molecular weight chlorinated hydrocarbons;
  - Biochemical oxygen demand (BOD$_5$);
  - Chemical oxygen demand (COD);
  - Detergent (anionic);
  - Phenols (index);
  - Total chromium;
  - Selected radionuclides;
  - Other pollutants known to be discharged in significant quantities.

(b) **Parameters to be determined in coastal waters:**

- **Priority parameters:**
  - Total mercury in organisms;
  - Organic mercury in organisms;
  - High-molecular weight halogenated hydrocarbons in organisms;
  - Faecal coliforms in recreational waters and edible bivalves;
  - Basic oceanographic and meteorological parameters; in particular, standard physical and chemical parameters (salinity, oxygen, temperature, chlorophyll and wind).
Other parameters:

- Cadmium in organisms;
- Petroleum hydrocarbons in water and tar balls in water and seashores (survey after 5 years);
- Total arsenic in organisms;
- Radionuclides in organisms;
- Pathogens in bivalves.

c) Parameters to be determined in estuaries:

Priority parameters:

- Total mercury in organisms and suspended matter;
- Organic mercury in organisms;
- High-molecular weight halogenated hydrocarbons in water and organisms;
- Faecal coliforms in water and bivalves;
- Total phosphorus in water and suspended matter;
- Total nitrogen in water and suspended matter;
- Total suspended matter;
- Basic oceanographic and meteorological parameters; in particular, standard physical and chemical parameters (salinity, oxygen, temperature and chlorophyll).

Other parameters:

- Cadmium in organisms and suspended matter;
- Radionuclides in water and suspended matter;
- Oil residues in water and suspended matter;
- Pathogens in water;
- Phenols in water.

d) Parameters to be determined in reference areas:

The same parameters selected for coastal waters.

83. Pilot monitoring exercises

(a) In addition to the parameters listed in paragraph 82, pilot studies for the determination of the levels in selected areas as well as the analytical method which could be recommended, should be either continued or launched as appropriate, for the following parameters:

- Pollutant transport into the Mediterranean sea through the atmosphere (ongoing since 1986);
- Organotin substances (1987);
- Organophosphorus substances (1987);
- Floating/sinking litter (1987);
- Polynuclear aromatic hydrocarbons in organisms (1988);

(b) On the basis of the results of the pilot studies, recommendations will be presented to the Working Group for Scientific and Technical Co-operation for the possible introduction of the parameters in the National Monitoring Programmes.

84. Land-based Sources Protocol

(a) During the biennium 1988-1989 the corresponding activities listed in the approved indicative calendar for the implementation of the Land-based Sources Protocol (UNEP/WG.125/10, annexes VII and VIII), should be initiated or implemented, as appropriate.

(b) Direct assistance should be provided to countries in order to facilitate the actual implementation of the protocol. The assistance should be provided mainly in terms of small equipment, visit of experts, local training, and cash, as appropriate.

85. Research and study topics

(a) During the 1988/1989 biennium the selection and funding of research proposals will follow the procedures endorsed by the Working Group for scientific and technical co-operation and approved by the Contracting Parties.

(b) The already existing close link between the research and the monitoring components of MED POL should be further strengthened in order to make full use of the results of the research activities in the assessments of the state of pollution of the Mediterranean Sea.

(c) In view of the limited funds allocated for research, during the biennium 1988-1989, the number of research proposals submitted should be limited as appropriate by giving priority to topics of specific relevance to the Mediterranean and not to those of more general relevance which are already the subject of study in other regions.

(d) It is recommended to convene during the biennium 1988-1989 the following meetings:

- review meeting on activities relevant to oceanographic processes responsible for transfer and distribution of pollutants (activity 'F') (1988);
- consultation meeting to discuss the reference methods on toxicity and review the progress of work (activity 'G') (1988);
consultation meeting on epidemiological and related studies regarding environmental quality criteria (activity 'D') (1989);

consultation meeting on programmes and measures in connection with Article 7 of the Land-based Sources Protocol (activity 'E') (1989).

workshop on monitoring and assessment of the airborne pollution of the Mediterranean Sea (activity 'I') (1989);

86. Environmental quality criteria

(a) Work should continue on the preparation of environmental quality criteria for the substances listed for 1988-1989 in the indicative workplan for the implementation of the Land-based Sources Protocol (UNEP/WG.125/10 annexes VII and VIII) in accordance with article 7(c) of the Land-based Sources Protocol.

87. Data collection

(a) Continue to strengthen the computerized MED POL data bank by processing data reported to the secretariat through:

- official channels, through MED POL National Monitoring Programmes under agreements;

- official channels, through ongoing monitoring programmes in countries with no agreement on National Monitoring Programme;

- open scientific literature of high international standards;

- regional and sub-regional research and monitoring programmes;

- other sources of information, as appropriate.

88. Data quality assurance

(a) In order to ensure a high quality and reliability of the data collected the following is recommended:

- formulation, review and amendment, as appropriate, of Reference Methods;

- formulation of data reporting formats for all the monitoring parameters;

- continuation of the regular intercalibration exercise of analytical techniques for priority parameters;

- provision of standards and reference materials;

- visits of experts to laboratories in order to work together with local scientists on sampling, analysis, quality assurance procedures, presentation and evaluation of results;
- intercomparison of results including sampling and analysis of split samples and expert assistance to laboratories for sampling, analysis, presentation and evaluation of results;
- assistance to countries for the preparation and designing of monitoring programmes;
- joint exercises on monitoring including intercomparison of sampling and analysis.

(b) In addition, the following specific activities are also recommended for implementation during the biennium:
- intercalibration and training course on determination of chlorinated hydrocarbons (1988);
- training course on treatment and interpretation of biological effects data (1988);
- intercalibration and training course on determination of organic mercury (1989);
- training course on analysis of physical oceanographic data and time-series (1989);

89. Data processing, management and utilization

(a) The processing of the monitoring data should continue with the following objectives:
- to prepare maps (contouring if possible) of pollution in the Mediterranean, or its sub-regions;
- to prepare periodically reports on the overall state of marine pollution in the Mediterranean or its sub-regions;
- to prepare standard statistical and correlation analysis of available data;
- to prepare assessments of the state of pollution of the Mediterranean Sea with respect to particular pollutants;
- to help countries to prepare national reports on the state of marine pollution in the areas under their jurisdiction;
- to exchange processed data with other international bodies and organizations.

(b) Two small ad hoc consultation meetings will be held in 1988 and 1989 with scientists/experts to advise the secretariat in the implementation of the activities listed under (a).
90. **Budget**

The following budgetary requirements are proposed for 1988-1989 for the implementation of the activities proposed in the paragraphs above (80-89).

### CHAPTER 3 - MED POL - MONITORING

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**A/** Cost of UNEP staff involved in MED POL covered through Chapter I (Co-ordination) of MAP budget.

**B/** Cost of travel of UNEP Staff related to MED POL covered through Chapter I (Co-ordination of MAP budget).
<table>
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<th>1989</th>
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<td>- Pilot project on monitoring of organotin compounds, including selection of method and preparation of assessment and proposed measures</td>
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<td>- Pilot project on monitoring of persistent synthetic materials, including selection of method and preparation of assessment and proposed measures</td>
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<td>- Pilot project on monitoring of methods for carcinogenic, teratogenic or mutagenic substances, including selection of method and preparation of assessment and proposed measures</td>
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<td>35,000</td>
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<td>- Pilot project on monitoring of submarine outfalls and evaluation of their technical efficiency</td>
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<td>- Preparation of draft annex IV to LBS Protocol on pollutants transported through the atmosphere</td>
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<td>- Survey of products and installations causing pollution</td>
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<td>- Intercalibration and training course on determination of microbiological pollution</td>
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<td>- Intercalibration and training course on determination of chlorinated hydrocarbons</td>
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<td>Training course on treatment and interpretation of biological effects data</td>
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<td>Training course on analysis of physical oceanographic data and time-series</td>
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<td><strong>4. MEETINGS/TRAINING/WORKSHOPS/FELLOWSHIPS</strong></td>
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<td>Meeting of responsible investigators of monitoring programmes</td>
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<tr>
<td>Ad hoc consultation meeting on data processing</td>
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## CHAPTER 4 - MED POL - RESEARCH

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1/ Meeting will be funded by WHO/ EURO at no cost to MTF.
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<td>4. Meetings/Training/Fellowships</td>
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Annex I

Status of implementation of National Monitoring Programmes (as at February 1987)

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<th>Signed by UNEP</th>
<th>Signed by country</th>
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<td>Tunisia</td>
<td>1983</td>
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<td>Turkey</td>
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</tr>
</tbody>
</table>

²/ Included in French Monitoring Programme.
Annex II

Participants in MED POL - PHASE II monitoring activities
(January 1986 - February 1987)

ALGERIA

Agence nationale pour la protection M. N. Sini
de l'environnement
Antenne d'Oran
9 Bd. du 5 Juillet
Oran

Agence nationale pour la protection M. H. Mostaifaï
de l'environnement
49 rue de Fusillés
Les Annassers
16 015 Alger

Institut des Sciences de la Mer M. A. Chouikhi
et de l'Aménagement du Littoral
B.P. 90
1er Novembre
Alger

Laboratoire de Chromatographie USTHB M. Sebih
2 Rue D. Mourad
Alger

Laboratoires du secteur sanitaire:

El Tarf M. Z. Khenroudour
El Kala M. F. Nahdi
Ibn Rouchid, Annaba M. M. Ataïlia
Chetaïbi M. Z. Boussaha
Azzaba M. R. Sayah
Skikda M. Y. Redjane
Jijel M. A. Bourouidi

Laboratoires d'Hygiène:

Walya, Bejaïa M. A. Aksons
Wilaya, Tizi-Onzou M. S. Benkacem
Wilaya, Boumerdes M. A. Boudersaïa
Mostaganem M. M. Bensdemi
Oran M. M. Benfrine
Tlemcen M. O. Hanon
Aïn Temouchent M. N. Merabet
Laboratoire Municipal d'Hygiène, Alger  
M. M. Chemekh

Laboratoires du secteur:

    Cherchell  M. H. Ayaa
    Kolea      M. M. Achoum
    Zeralda    M. Y. Charbi
    Hadjout    M. A. Khemar
    Gouraya    M. A. Taider
    Chlef      M. K. Mehidi

CYPRUS

Fisheries Department  Mr. L. Loizides
Ministry of Agriculture and  Ms. L. Athanassiadou
    Natural Resources
5-7 Tagmatarchoch Pouliou
Nicosia

Medical and Public Health Service  Mr. F. Neocleous
Ministry of Health
Nicosia

EGYPT

Institute of Oceanography and Fisheries  Mr. A.R. Bayoumi
Kayet Bay
Alexandria

High Institute of Public Health  Mr. F. El-Sharkawy
Horrea Str.
Alexandria

Atomic Energy Establishment  Mr. A. G. El-Sayed
Anshass
Cairo
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IFREMER
Centre de Nantes, DERO/MR.
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BP 1049
44037 Nantes Cedex 01

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27 Boulevard Jean Moulin
13385 Marseille Cedex 4

Université de Marseille Luminy
Laboratoire d'Hydrobiologie Marine
70 rue Léon Lachamp
13288 Marseille Cedex 2

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16 Boulevard de Suisse
Monte Carlo
Principauté de Monaco

Laboratoire Départemental d'Ajaccio
18 Boulevard Lantivy
20000 Ajaccio

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Haifa

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Ministry of Health
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Tel-Aviv

District Public Health Laboratory
Ministry of Health
P.O. Box 9526
Haifa

District Public Health Laboratory
Ministry of Health
Beer-Sheva

Ms. H. Hornung
Ms. Y. Yoshpe-Purer
Mr. A. Mates
Ms. N. Platzner

M. Alzieu
M. A. Arnoux
M. Leveau
M. A. Vatican
M. Gibert
LEBANON

Research Centre for Scientific Research National Research Council
P.O. Box 123
Jounieh

Mr. H. H. Kouyoumjian

LIBYAN ARAB JAMAHIRIYA

Environmental Protection Programme
P.O. Box 8004
Tripoli

Mr. Y. Elmehrik

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Mr. F. Fortia

Petroleum Research Centre
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Tripoli

Mr. S. Tumi

Industrial Research Centre
P.O. Box 3633
Tripoli

Mr. R. Mukhtar

MALTA

Department of Health and Environment
Toxicology Unit, Pathology Department
St. Luke's Hospital
G'Mangia

Mr. M. Sammut

Department of Works
Sewage Purification Plant
Sant Antnin
M'Scala

Mr. V. Gauci

Biology Section
Department of Maths and Science
University of Malta
Msida

Mr. V. Axiak

Department of Health and Environment
Public Health Labs, Evans Building
Valletta

Mr. F. Portelli
MOROCCO

Institut Agronomique et Vétérinaire
Hassan II
B.P. 6202
Rabat

Laboratoire de pharmacologie,
toxicologie et biochimie
M. M. Kessabi

Laboratoire d'Hygiène et industrie
denrées alimentaires d'origine
animale
M. S. Belmlih

Laboratoire de chimie analytique et
minérale
M. B. Raissouni

Institut scientifique des Pêches maritimes
Mme H. Idrissi
B.P. 21
rue Tiznit
Casablanca 01

Ecole Mohammed d'Ingénieurs
(Centre National de Génie Sanitaire
CNGS/EMI, B.P. 765
Rabat

Laboratoire de la Qualité des eaux
O.N.E.P.
Rabat

Institut National d'Hygiène (I.N.H.)
B.P. 769
Rabat

Faculté des Sciences d'Oujda
Oujda
M. Ramdani

Office National de l'eau potable
B.P. Rabat-Chellah
Rabat
M. H. Abouzid
SPAIN

Centro de Estudios Avanzados de Blanes
Camino de Sta. Barbara
Blanes (Gerona)

Inst. de Química Bio-organica
Centro Investigacion y Desarrollo
c/Jorge Girona Salgado 18-26
Barcelona

Inst. Químico de Sarria
Barcelona 17

Colegio Univers. de Castellon
Universidad de Valencia
Valencia

Facultad Ciencias
Universidad de Valencia
C/Dr. Moliner, 50
Bursasot (Valencia)

Dept. de Química Analítica
Universidad de Alicante
Carretera de San Vicente s/n
Alicante

Instituto Español de Oceanografia
C/Alcala, 27
Madrid 28014

SYRIAN ARAB REPUBLIC

Marine Research Centre
P.O. Box 1216
Latakia

Coast Centre Latakia
Cost Center for Pollution Combating
(Facing Techrin University)

Atomic Energy Establishment
Atomic Energy Centre
YUGOSLAVIA

Marine Research and Training Centre Piran  Mr. P. Tusnik
JIA 65
66330 Piran

Centre for Marine Research  Ms. D. Fuks
Ruder Boskovic Institute Rovinj
G. Paliaga 5
52210 Rovinj

Josef Stefan Institute  Mr. P. Stegnar
Jamova 39
61000 Ljubljana

Health Protection Institute  Ms. C. Skabic
Nazorova 3
52000 Pula

Faculty of Civil Engineering  Mr. L. Sipos
University of Zagreb
J. Rakuse 1
41000 Zagreb

Institute of Public Health  Mr. A. Sablic
B. Kidrica 52 a
51000 Rijeka

Centre for Marine Research  Ms. V. Zutic
Ruder Boskovic Institute Zagreb  Mr. A. Skrivanic
P.O. Box 1016
51001 Zagreb

Institute of Public Health  Ms. N. Stambuk-Giljanovic
Balkanska 46
58000 Split

Institute for Subtropical Cultures  Mr. R. Kljajic
and Environmental Protection Bar
Topolica b.b.
85000 Bar

Institute for Oceanography and Fisheries  Ms. N. Krstulovic
Mose Pijade 63
P.O. Box 114
58001 Split

Biological Institute  Mr. D. Vilicic
P.O. Box 39
50001 Dubrovnik

Institute for Marine Biology  Mr. B. Stjepcevic
82000 Kotor
Annex III

List of research projects

a) ongoing projects as at February 1987

b) completed projects as at February 1987

c) 1986 and 1987 projects under negotiation
a) ongoing projects as at February 1987
a) projets de recherche en cours en février 1987

Activity A

Development and testing of sampling and analytical techniques for monitoring of marine pollutants

Activité A

Mise au point et essai de techniques d'échantillonnage et d'analyse pour la surveillance des polluants de la mer
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

IOC  ISR-12-A
A. GOLIK
QUANTITATIVE ESTIMATION OF BEACH TAR BALLS BY REMOTE SENSING  82:
  83:
  84:
  85: 6000

ISRAEL OCEANOGRAPHIC AND LIMNOLOGICAL RESEARCH INSTITUTE  86: NIL
HAIFA  87:

WHO  ISR-13-A
Y. YONA YOHE-PRUR
DETERMINATION OF THE MOST SUITABLE MEDIUM FOR ENUMERATION OF FAECAL STREPTOCOCCI IN MARINE WATERS  82:
  83:
  84:
  85: 4000

DR. A. FELIX PUBLIC HEALTH LABORATORY MINISTRY OF HEALTH, TEL AVIV  86: 3500

WHO  ISR-14-A
A. MATS
DETERMINATION OF E. COLI. FROM FAECAL COLIFORMS IN SEA-WATER BY THE MEMBRANE FILTRATION CULTURE METHOD  82:
  83:
  84:
  85: 4000

DISTRICT PUBLIC HEALTH LABORATORY MINISTRY OF HEALTH HAIFA  86: 3500

FAO  ISR-17-A
D. WYNNE
ORGANOPHOSPHORUS COMPOUNDS IN THE MARINE ENVIRONMENT - FISH  82:
  83:
  84:
  85:

THE KINNERET LIMNOLOGICAL LABORATORY, TIBERIAS  86: 3000
  87:

IAEA  ISR-18-A
D. WYNNE
ORGANOPHOSPHORUS COMPOUNDS IN THE MARINE ENVIRONMENT - SEDIMENTS  82:
  83:
  84:
  85:

THE KINNERET LIMNOLOGICAL LABORATORY, TIBERIAS  86: 5000
  87:

NNN: US Dollars  COM: Completed  NAC: Not Accepted
Dollars E.U.  Achieve  Non accepte
NIL: No Contribution  UND: Under Negotiation  WIT: Withdrawn
Aucune contribution  En cours de negoci.  Retire
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

IOC  ITA-18-A
G. C. PAPPALARDO
STUDIES AND MONITORING OF TRACE METALS IN MARINE WATERS  82:
BY INDUCTIVELY COUPLED PLASMA (ICP) EMISSITRY  83:
84:
85: 4000

ISTITUTO DIPARTIMENTALE DI CHIMICA UNIVERSITA DI
CATANIA  86: NIL

IAEA  ITA-19-A
M. GALLORINI
NUCLEAR METHODS FOR TRACE ELEMENTS DETERMINATION IN
ENVIRONMENTAL RELATED MATRICES  82:
83:
300
85: NIL

CNR CENTRO DI RADIOCHIMICA, UNIVERSITA DI PAVIA
86: NIL

FAO  ITA-57-A
V. U. FOSSATO
TESTING OF THE METHOD OF ANALYSIS OF DDTS AND PCBS IN
MARINE ORGANISMS  82:
83:
84:
55: 3000

ISTITUTO DI BIOLOGIA DEL MARE CNR, VENEZIA
86: NIL

WHO  LIB-1-A
A. F. BOARGOB
ASSESSMENT OF MICROBIOLOGICAL POLLUTION IN BATHING
SEAWATER IN TRIPOLI  82:
83:
84:
85:

ENVIRONMENTAL PROTECTION PROGRAMME SECRETARIAT OF
SCIENTIFIC RESEARCH, TRIPOLI  86: 3000

IAEA  SPA-10-A
M. GASSIOT-MATAS
STUDY OF ORGANOCHLORINATED POLLUTANTS TRANSFER THROUGH
THE MARINE INTERFACE  82:
83:
84:
85:

INSTITUTO QUIMICA DE SARRIA, BARCELONA  86: 6000

NNN: US Dollars  COM: Completed  NAC: Not Accepted
Dollars E.U.  Achieve  Non accepte
NIL: No Contribution  UND: Under Negotiation  WIT: Withdrawn
Aucune contribution  En cours de negoc.  Retire
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

FAO SPA-14-A
J. OBIOLS SALVAT
STUDIES ON METHODOLOGY FOR DETERMINATION OF TOTAL ARSENIC IN SELECTED MARINE ORGANISMS
82: 83: 84: 85: 3000
INSTITUTO QUIMICO DE SARRIA, BARCELONA 86: 3000 87:

WHO SPA-17-A
J. JOFRE TORROELLA
BACTERIOPHAGES OF BACTEROIDES AS INDICATORS OF PATHOGENIC HUMAN VIRUSES IN COASTAL SEAWATERS 82: 83: 84: 85: 2500
FACULTAD DE BIOLOGIA, UNIVERSIDAD DE BARCELONA 86: 4500 87:

IAEA YUG-9-A
V. VALKOVIC
DEVELOPMENT OF X-RAY EMISSION SPECTROSCOPY AS MULTIELEMENTAL ANALYTICAL TECHNIQUES FOR MONITORING MARINE POLLUTANTS 82: 83: 84: 2000 85: NIL
DEPARTMENT OF PHYSICS RUDJER BOSKOVIC INSTITUTE ZAGREB 86: NIL 87:

IOC YUG-18-A
B. COSOVIC
DEVELOPMENT OF NEW ELECTROANALYTICAL TECHNIQUES FOR DETERMINATION OF SURFACE ACTIVE SUBSTANCES AND DETERGENTS IN SEA-WATER AND SEA SURFACE MICROLAYER 82: 83: 84: 85: 3500
CENTRE FOR MARINE RESEARCH RUDJER BOSKOVIC INSTITUTE 86: 3000 87:
ZAGREB

NNN: US Dollars COM: Completed NAC: Not Accepted
Dollars E.U. Achieve Non accepte
NIL: No Contribution UND: Under Negotiation WIT: Withdrawn
Aucune contribution En cours de negociation Retire
Activity B

Development of reporting formats required according to the Dumping, Emergency and Land-based Sources Protocols

Activité B

Mise au point des formulaires types pour les rapports à soumettre en application des protocoles relatifs à l'immersion, à la pollution résultant de situations critiques et à la pollution d'origine tellurique
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

WHO TUR-14-B
S. SOYUPAK
DEVELOPMENT OF APPROACHES FOR THE CONTINUOUS ASSESSMENT OF POLLUTANT LOADS

DEPARTMENT OF ENVIRONMENTAL ENGINEERING, MIDDLE EAST
TECHNICAL UNIVERSITY (METU) ANKARA

NNN: US Dollars
Dollars E.U.
NIL: No Contribution
Aucune contribution
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UND: Under Negotiation
En cours de negoc.
NAC: Not Accepted
Non accepte
WIT: Withdrawn
Retire
Activity C

Formulation of the scientific rationale
for Mediterranean environmental quality criteria

Activité C

Elaboration des fondements scientifiques des critères
de qualité de l'environnement en Méditerranée
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

WHO ITA-59-C
L. VOLterra
DEVELOPMENT OF ANALYTICAL TECHNIQUES FOR MONITORING THE HYGIENIC QUALITY OF SHELLFISH

LABORATORIO DI IGIENE ISTITUTO SUPERIORE DI SANITA, ROMA 86: 3000 87:

WHO SPA-21-C
T. FELIU MENDEZ
STUDY OF METHODS IN MICROBIOLOGICAL ANALYSIS OF SEAWATER FOR FAECAL STREPTOCOCCI

HEALTH AND SOCIAL SECURITY DEPARTMENT TERRITORIAL DELEGATION OF TARRAGONA 86: 2000 87:

WHO TUR-15-C
Y. F. OZTURK
FORMULATION OF SCIENTIFIC RATIONALE FOR EMISSION STANDARDS OF SELECTED POLLUTANTS

DEPT. OF ENVIRONMENTAL ENGINEERING, MIDDLE EAST TECHNICAL UNIVERSITY, METU, ANKARA 86: 4000 87:

WHO YUG-63-C
V. PRAVdic
DEVELOPMENT OF MODELS FOR CALCULATION OF ENVIRONMENTAL CAPACITY OF SEAWATER IN THE MEDITERRANEAN

CENTER FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB 86: 3500 87:

WHO YUG-67-C
N. KRSTULovic
COMPARISON OF FAECAL COLIFORM LEVELS IN MUSSEL FLESH AND FLESH/INTERVALVULAR FLUID

INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT 86: 3000 87:

NNN: US Dollars COM: Completed NAC: Not Accepted
Dollars E.U. Achieve Non accepte
NIL: No Contribution UND: Under Negotiation WIT: Withdrawn
Aucune contribution En cours de negoc. Retire
Activity D

Epidemiological studies related to environmental quality criteria

Activité D

Études épidémiologiques relatives
aux critères de qualité de l'environnement
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

WHO GRE-8-D
J. A. PAPADAKIS
EVALUATION OF HEALTH RISK AT DIFFERENT BACTERIOLOGICAL GRADES OF SEAWATER. RELATION BETWEEN DENSITIES OF INDICATOR ORGANISMS AND MICROBIAL PATHOGENS IN SEAWATER
ATHENS SCHOOL OF HYGIENE

82: 82:
83: 5000 83: 5000
84: 5500 85: NIL
86: 5000 87:

WHO GRE-9-D
V. KRIKELIS
RESEARCH OF ENTERIC VIRUSES IN AQUATIC ENVIRONMENTS (SEWAGE EFFLUENTS COASTAL SEAWATERS FRESH WATERS)
PASTEUR INSTITUTE ATHENS

82: 82:
83: 83:
84: 5000 84: 5000
85: 5000 85: 5000
86: NIL 87:
87:

WHO GRE-13-D
J. A. PAPADAKIS
INVESTIGATION FOR NEUROTOXINS IN SHELLFISH OF ELEFSIS AND SARONICOS GULFS
ATHENS SCHOOL OF HYGIENE

82: 82:
83: 83:
84: 4500 84: 4500
85: 4500 85: 4500
86: NIL 87:
87:

WHO GRE-29-D
S. NAKOU
BIOLOGICAL MONITORING OF METHYLMERCURY IN MEDITERRANEAN POPULATIONS: SAMPLING OF HUMAN HAIR
INSTITUTE OF CHILD HEALTH AGHIA SOPHIA CHILDREN'S HOSPITAL ATHENS

82: 82:
83: 83:
84: 3500 84: 3500
85: 3500 85: 3500
86: NIL 87:
87:

WHO GRE-30-D
A. TRICHOPOULOU
BIOLOGICAL MONITORING OF MERCYLMERCURY IN MEDITERRANEAN POPULATIONS: DIETARY SURVEY
ATHENS SCHOOL OF HYGIENE

82: 82:
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84: 5000 84: 5000
85: 5000 85: 5000
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87:

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COM: Completed
Dollars E.U.
Achieve
NIL: No Contribution
UND: Under Negotiation
Aucune contribution
WIT: Withdrawn
NAC: Not Accepted
Non accepte
Retire

UNEP/WG.160/3
Annex III
page 17
### RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHES DANS LE CADRE DU MED POL
(1982 - 1987)

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<td>B. FATTAL</td>
<td>Epidemiological study of morbidity and viral antibodies among bathers exposed to microbial pollution of seawater</td>
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<td></td>
<td>Environmental Health Laboratory, Hebrew University, Jerusalem</td>
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**FAO ITA-38-D**

<table>
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<th>R. CAPELLI</th>
<th>Determination du mercure total, de methylmercur et de selenium dans les organismes marins de consommation afin d'étudier leur corrélation</th>
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<td></td>
<td>Istituto di Chimica Generale, Università di Genova</td>
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**FAO ITA-52-D**

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<th>A. RENZONI</th>
<th>Evaluation of methylmercury in Mediterranean populations: seafood analyses</th>
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<td>Dipartimento di Biologia Ambientale, Università di Siena</td>
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**WHO ITA-53-D**

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<th>A. RENZONI</th>
<th>Evaluation of methylmercury in Mediterranean populations: sampling of human hair</th>
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<td>Dipartimento di Biologia Ambientale Università di Siena</td>
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**WHO ITA-54-D**

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<th>A. RENZONI</th>
<th>Biological monitoring of methylmercury in Mediterranean populations: dietary survey</th>
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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

WHO YUG-27-D
R. BUZINA
EVALUATION OF METHYLMERCURY IN MEDITERRANEAN POPULATIONS AND RELATED HEALTH HAZARDS

INSTITUTE OF PUBLIC HEALTH OF SR CROATIA, ZAGREB

WHO YUG-28-D
P. STEGNAR
ANALYSIS OF HUMAN HAIR FOR ASSESSING EXPOSURE AND POSSIBLE HEALTH HAZARDS IN MEDITERRANEAN POPULATIONS DUE TO METHYLMERCURY IN SEAFOOD

INSTITUTE JOSEF STEFAN, UNIVERSITY E. KARDELJ, LJUBLJANA

WHO YUG-79-D
P. STEGNAR
ANALYSIS OF HUMAN HAIR AND OTHER TISSUES ON BEHALF OF INSTITUTIONS PARTICIPATING IN MEDITERRANEAN METHYLMERCURY PROJECT

INSTITUTE JOSEF STEFAN, UNIVERSITY E. KARDELJ, LJUBLJANA

NNN: US Dollars
Dollars E.U.
NIL: No Contribution
Aucune contribution

COM: Completed
Achieve
UNDER: Under Negotiation
En cours de negoc.

NAC: Not Accepted
Non accepte
WIT: Withdrawn
Retire
Activity E

Guidelines and criteria for the application of the Land-based Sources Protocol

Activité E

Directives et critères pour l'application du Protocole relatif à la pollution d'origine tellurique
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

WHO GRE-47-E
J. GANOULIS
DEVELOPMENT OF GUIDELINES FOR THE DESIGN OF SUBMARINE OUTFALLS IN THE MEDITERRANEAN 82:
83:
84:
85:

DEPARTMENT OF HYDRAULICS AND ENVIRONMENTAL ENGINEERING,
SCHOOL OF TECHNOLOGY, ARISTOTLE UNIVERSITY OF THESSAL 86: 4000
87:

WHO LIB-3-E
S. OMAR TUMI
ASSESSMENT OF WASTE OIL IN SPLAJ 82:
83:
84:
85:

PETROLEUM RESEARCH CENTRE, TRIPOLI 86: 4000
87:

<table>
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<tr>
<th>NNN: US Dollars E.U.</th>
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Activity F

Research on oceanographic processes

Activité F

Recherches sur les processus océaniques
<table>
<thead>
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<th>Project Code</th>
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<th>Description</th>
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<tbody>
<tr>
<td>IOC FRA-20-F</td>
<td>P. M. Lehucher</td>
<td>Modelling Hydrodynamique du Bassin Occidental de la Méditerranée</td>
<td>82:</td>
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<tr>
<td>IOC GRE-1-F</td>
<td>J. Ganoulis</td>
<td>Development of Mathematical Models for Horizontal Transport of Pollutants in Coastal Areas of the Mediterranean Sea</td>
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<td>A. Lascaratos</td>
<td>Dynamical Study of Surface Cold Water Patterns Appearing in the Gulf of Korinth</td>
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<td>IOC GRE-10-F</td>
<td>M. Bonazunatas</td>
<td>Modelling Pollutant Circulation in Coastal Waters</td>
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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

IOC  GRE-40-F
G. FERENTINOS
A STUDY OF THE CIRCULATION PATTERNS IN A FJORD TYPE
SEMI-ENCLOSED SEA AMBRÁLIKOS BAY IONIAN SEA. A) 1982:
MECHANISMS GOVERNING THE WATER EXCHANGE BETWEEN THE
OPENSEA AND THE FJORD  B) RIVER PLUME DISPERSION 1985:
DEPARTMENT OF GEOLOGY UNIVERSITY OF PATRAS 1986: 3000 1987:

IOC  ITA-12-F
P. MALANOTTE RIZZOLI
MODELLING OF CIRCULATION PROCESSES IN THE NORTHERN 1982:
ADRIATIC AND THEIR INFLUENCE ON THE DISTRIBUTION OF 1983:
POLLUTANTS CONSIDERED AS PASSIVE SCALARS 1984: 6000 1985: NIL
ISTITUTO PER LO STUDIO DELLA DINAMICA DELLE GRANDI MASSE VENEZIA 1986: NIL 1987:

IOC  ITA-23-F
S. CUNSOLO
VERTICAL TRANSPORT PROCESSES OF MARINE WATER NEAR THE 1982:
ITALIAN COASTS 1983:

IOC  ITA-33-F
R. SANTANGELO
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EXPERIMENTAL CHECKS OF CURRENTS IN FIXED POINTS 1983:

IOC  SPA-19-F
J. SALAT
EASTERN MEDITERRANEAN DRIFT-CARD EXPERIMENT (DRIFTEX) 1982:

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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
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IOC TUR-1-F
U. UNLUATA
OCEANOGRAPHIC PROCESSES IN THE NORTHEASTERN LEVANTINE COASTAL WATERS
82: 3000
83: 8000
85: 7000

MIDDLE EAST TECHNICAL UNIVERSITY ERDEMLI ICEL
86: NIL
87:

IOC TUR-2-F
E. OZSOY
POLLUTANT TRANSPORT PROCESSES AT GOKSU SEYHAN AND CEYHAN RIVER MOUTHS
82: 3000
83: 8000
85: NIL

MIDDLE EAST TECHNICAL UNIVERSITY ERDEMLI ICEL
86: NIL
87:

IOC YUG-6-F
M. GACIC
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82: 3000
83: 8000
85: 8000

INSTITUTE OF OCEANOGRAPHY AND FISHERIES SPLIT
86: 4000
87:

IOC YUG-15-F
M. KUZMIC
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82: 3000
83: 8000
85: NIL

CENTER FOR MARINE RESEARCH RUDJER BOSKOVIC INSTITUTE ZAGREB
86: NIL
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IOC YUG-25-F
J. FAGANELI
MODIFICATIONS OF THE SUSPENDED ORGAMATTER COMPOSITION AND SEDIMENTATION IN THE POLLUTED COASTAL WATERS
82: 6600
83: 8000
85: 8000

MARINE RESEARCH AND TRAINING CENTRE PIRAN
86: NIL
87:

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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
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IOC         YUG-36-F
M. ZORE-ARMANDA
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                                                    85:  5000
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INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT

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| NIL: No Contribution | Aucune contribution | En cours de negoc. |
Activity G

Research on the toxicity, persistence, bioaccumulation, carcinogenicity and mutagenicity

Activité G

Recherches sur la toxicité, la persistance, la bioaccumulation, la cancérogenicité et la mutagénicité
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
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C. CHASSARD-BOUCHAUD
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84: 4000
85: 3000
86: 2000

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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
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FAO  GRE-31-G
S. E. PAPOUTSOGLOU
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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
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H. RAV-ACHA
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A. RENZONI
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84: 2000
85: 2000

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V. ALBERGONI
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S. DE FLORA
MUTAGENICITY OF CHEMICAL COMPOUNDS IN THE MARINE
ENVIRONMENT 82:
83:
84:
85:

INSTITUTE OF HYGIENE, UNIVERSITY OF GENOVA 86: 3000
87:

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WHO  ITA-79-G
G. P. DE RENZI
CORRELATION BETWEEN MARINE POLLUTANTS AND DEGENERATIVE
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84:
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FACULTY OF MEDICINE UNIVERSITY OF ROME "LA SAPIENZA"
86:  3000
87:

WHO  ITA-80-G
G. L. BRONZETTI
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SEAWATER
82:
83:
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85:

INSTITUTO DI MUTAGENESI E DIFFERENZIAMENTO DEL CNR, PISA
86:  3000
87:

FAO  MAL-4-G
V. AXIAK
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BIOLOGY SECTION OF THE MATHS DEPT, UNIVERSITY OF MALTA
86:  3000
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FAO  MOR-2-G
M. KESSABI
RECHERCHE SUR LA TOXICITE, LA PERSISTANCE ET LA
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82:
83:
84:
85:  5000

INSTITUT NATIONAL AGRONOMIQUE ET VETERINAIRE, RABAT
86:  2000
87:

FAO  SPA-13-G
J. MEDINA ESCRICH
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OF SOME HEAVY METALS AND PESTICIDES IN THE CRAYFISH
Procambarus clarkii (GIRARD) ON THE ALBUFERA LAKE
82:
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85:  4000

UNIVERSITY COLLEGE OF CASTELLON, UNIVERSITY OF VALENCIA
86:  3000
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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
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FAO SPA-20-G
B. MORALES-NIN
LIFE HISTORY PATTERNS OF MEDITERRANEAN BLUEFIN TUNA
82: 83: 84: 85:

INSTITUTO DE CIENCIAS DELMAR, BARCELONA
86: 3000
87:

FAO TUR-5-G
H. BAGCI
DESIGN AND DEVELOPMENT OF BIO-TEST METHODS THAT WILL BE USED TO ASSAY THE POLLUTANTS LISTED IN THE ANNEXES OF THE PROTOCOLS WITH RESPECT TO THEIR TOXICITY, RESIDUAL EFFECTS, BIO-DEGRADABILITY, MUTAGENICITY AND DEPT. OF BIOLOGICAL SCIENCES, MIDDLE EAST TECHNICAL UNIV., ANKARA 86: NIL 87:

WHO YUG-14-G
B. KURELEC
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CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB
86: NIL

FAO YUG-47-G
N. FANUKO
TOXICITY OF CADMIUM, MERCURY AND PCBS TO THE REPRESENTATIVE NORTHERN- ADRIATIC PHYTOPLANKTON SPECIES CULTURED IN VITRO 82: 83: 84: 85: 4000

MARINE RESEARCH AND TRAINING CENTRE, PIRAN 86: 87: NIL

FAO YUG-53-G
M. OZRETIC
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CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ROVINJ 86: 87:

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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
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FAO YUG-70-G
B. OZRETIC
DEVELOPMENT OF SHORT-TERM TOXICITY TESTS: THE USE OF
SEAURCHIN GAMETES AND THEIR DEVELOPMENTAL STAGES

CENTER FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE,
ROVINJ

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Activity H

Eutrophication and concomitant plankton blooms

Activité H

Eutrophisation et floraisons concomitantes de plancton
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
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(1982 - 1987)

FAO ITA-81-H
L. ROTTINI-SANDRINI
PERIODICITY AND CAUSES OF IRREGULAR MACRO- AND
MICRO-PLANKTON BLOOMS APPEARING IN EUTROPHICATED AREAS
IN NORTHERN ADRIATIC AND GULF OF TRIESTE

LABORATORY OF MARINE BIOLOGY - CIMAM, TRIESTE

FAO YUG-43-H
I. MARASOVIC
STUDIES OF TOXIC DINOFLAGELLATE SPECIES IN THE INSHORE
WATERS OF THE EAST ADRIATIC COAST

INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT

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Activity I

Pollution-induced ecosystems modifications

Activité I

Modification des écosystèmes par la pollution
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
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FAO GRE-34-I
A. NICOLAIDOU
IDENTIFICATION OF BIOLOGICAL INDICATORS OF HEAVY METALS AT THE SITE OF A SMELTING IN LARYMNA, GREECE
ZOOLOGICAL LABORATORY, UNIVERSITY OF ATHENS
86: 3000
87:

FAO GRE-38-I
I. SIOKOU-FRANGOU
ETUDE DE L'IMPACT DE LA POLLUTION SUR LE ZOOPLANCTON DU GOLFE SARONIKOS (MER EGEE, GREECE)
CENTRE NATIONAL DE RECHERCHES MARINES, ATHENES
86: 3000
87:

FAO LEB-2-I
N. M. KHAIRALLAH
POLLUTION-INDUCED ECOSYSTEMS MODIFICATIONS
CENTRE FOR MARINE RESEARCH, BEIRUT
86: 2000
87:

FAO LEB-3-I
S. H. LAKKIS
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MARINE RESEARCH CENTRE, BEIRUT
86: 3000
87:

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Activity J

Effects of thermal discharges on coastal organisms and ecosystems

Activité J

Effets des pollutions thermiques sur les organismes et écosystèmes côtiers
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
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FAO ALG-6-J
A. BAKALEM

EFFETS DES POLLUTIONS THERMIQUES SUR LES ORGANISMES ET
ECOSYSTEMES COTIERES

INSTITUT DES SCIENCES DE LA MER ET DE L'AMENAGEMENT DU
LITTORAL (ISMAL), ALGER

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Activity K
Biogeochemical cycles of specific pollutants

Activité K
Cycle biogéochimique de certains polluants
## RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
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**1982 - 1987**

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<th>P. BERNARD</th>
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<td>RECHERCHE DE DERMATOPHYTES ET MOISISSURES PATHOGENES DANS LE SABLE DES ZONES MARINES À VOCATION BALNEAIRE PAR LA MÉTHODE DE FILTRATION SUR MEMBRANES ET SENSIBILITÉ DES DERMATOPHYTES ISOLES VIS-A-VIS DE \INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE (INSERM) VILLEFRANCHE/MER</td>
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<td>ESTIMATION DES APPORTS PAR LES EFFLUENTS URBAINS ET CAPACITÉS DE SURVIE DANS LE MILIEU MARIN DE CERTAINS MICROORGANISMES PATHOGENES, VARIATIONS EN FONCTION DE LAFILIERE D'EPURATION UTILISÉE DEPT. RECHERCHE FONDATION OCEANOGRAPHIQUE, RICARD SIX FOURS LES PLAGES</td>
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<td>TRANSFER OF POLLUTANTS (HEAVY METALS-HYDROCARBONS) IN THE MARINE ENVIRONMENT OF SARONIKOS GULF CHEMISTRY DEPARTMENT, NUCLEAR RESEARCH CENTER &quot;DEMOKRITOS&quot; ATHENS</td>
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<th>FAO</th>
<th>ISR-11-K</th>
<th>H. HORNUNG</th>
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<td></td>
<td>SOME ASPECTS OF THE BIOGEOCHEMICAL CYCLE OF MERCURY IN APOLLUTED AREA OFF THE ISRAEL MEDITERRANEAN COAST ISRAEL OCEANOGRAPHIC AND LIMNOLOGICAL RESEARCH INSTITUTE, HAIFA</td>
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|      | Aucune contribution | WIT: | Withdrawn |
|      |                     | NAC: | Not Accepted |
|      |                     |     | Non accepte |
|      |                     |     | Retire    |
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

FAO ITA-68-K
E. BACCI
ENVIRONMENTAL DISTRIBUTION AND FATE OF ORGANOTIN
COMPpounds (mainly butyltin and methyltin species) WITH
PARTICULAR ATTENTION TO THE MARINE ENVIRONMENT
82: 83: 84: 85:
DIPARTIMENTO DI BIOLOGIA AMBIENTALE, UNIVERSITA DEGLI
STUDI DI SIENA
86: 3000
87:

FAO ITA-69-K
F. BALDI
ISOLATION AND ASSESSMENT OF BACTERIA WHICH TRANSFORM
THE INORGANIC AND ORGANIC FORMS OF MERCURY IN THE MARINE
ENVIRONMENT: METHOD TO EVALUATE THE BIOTRANSFORMING
FEATURES OF MERCURY RESISTANT BACTERIA
82: 83: 84: 85:
DIPARTIMENTO DI BIOLOGIA AMBIENTALE, UNIVERSITA DEGLI
STUDI DI SIENA
86: 3000
87:

IAEA ITA-76-K
L. TASSI PELATI
BEHAVIOUR OF Pu-239 IN THE MARINE ENVIRONMENT WITH
PARTICULAR ATTENTION TO ITS TRANSFERS THROUGH THE
FOOD-CHAINS (SEE ALSO ITA/14)
82: 83: 84: NIL
ISTITUTO DI ZOOLOGIA DELL'UNIVERSITA DI PARMA
85: NIL
86:
87:

WHO SPA-6-K
P. ROMERO RAYA
STUDIES ON SURVIVAL OF PATHOGENIC MICROORGANISMS IN
SEAWATER
82: 83:
84: 4500
85: 4500
86: NIL
87:

FACULTY OF SCIENCE, DEPT. OF MICROBIOLOGY, UNIVERSITY OF
MALAGA

IAEA YUG-11-K
M. BRANICA
ANTHROPGENIC INFLUENCE ON THE DISTRIBUTION AND FLUXES
OF LEAD SPECIES INTO THE MARINE ENVIRONMENT
82: 83:
84: 4000
85: NIL
86: 4000
87:

CENTRE FOR MARINE RESEARCH RUDJER BOSKOVIC INSTITUTE
ZAGREB

NNN: US Dollars
Dollars E.U.
NIL: No Contribution
Aucune contribution

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Achieve
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En cours de negoc.
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Non accepte
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Retire
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

IAEA YUG-22-K
N. AJDACIC
ACCUMULATION AND TRANSPORT OF RADIONUCLIDES IN THE BIOTA OF THE SOUTH ADRIATIC REGION
82:
83:
84: 2000
85: NIL
86: NIL
87:

UNIVERSITY "VELJKO VLACHOVIC" TITOGRAD

FAO YUG-49-K
T. ZVONARIC
STUDY OF THE MERCURY ECOCYCLE IN THE MARINE SYSTEM OF THE KASTEL BAY
82:
83:
84:
85: 4500
86: 3000
87:

INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT

FAO YUG-64-K
M. BRANICA
BIOGEOCHEMICAL CYCLE OF MERCURY SPECIES IN THE MARINE ENVIRONMENT
82:
83:
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CENTER FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB
86: 3000
87:

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Dollars E.U.
UND: Under Negotiation En cours de negoc.
WIT: Withdrawn Retire
NIL: No Contribution Aucune contribution
NIL: NIL
Activité L

Pollutant-transfer processes

Activité L

Processus de transfert des polluants
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

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IOC  EEC-1-L
P. FRAISSE
ETUDE DU TRANSPORT COTIER DE LA POLLUTION 82:
83:
84:
85: NIL

COMMISSIONE DELLE COMMUNITA EUROPEE CENTRO COMUNE DI
RICERCA STABILIMENTO DI ISPRA 86: NIL
87:

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IOC  EGY-8-L
M. F. MACKLAD
POLLUTANT TRANSFER PROCESSES 82:
83:
84: 4000
85: 5100

UNIVERSITY OF ALEXANDRIA RESEARCH CENTRE (UNARC) 86: NIL
87:

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IOC  FRA-7-L
A. MONACO
ROLE DES COUCHES NEPHELOIDES ET DES COLLOIDES 82:
ORGANIQUES DANS LE TRANSPORT DES METAUX LOURDS (PB, CD 83:
CU, ZN) DU MILIEU ESTUARIEN AU MILIEU MARIN. EXEMPLE DU 84:
RHONE 85: 9900
LABORATOIRE DE SEDIMENTOLOGIE ET GEOCHIMIE MARINES 86: NIL
UNIVERSITE DE PERPIGNAN 87:

---

WMO  FRA-15-L
J. MORELLI
CONTRIBUTION A L'ETUDE DU CYCLE DE METAUX 82:
POTENTIELLEMENT TOXIQUES DANS L'ENVIRONNEMENT 83:
ATMOSPHERIQUE MEDITERRANEEN. ORIGINES ET 84:
EVALUATION DE L'APPORT AU MILIEU MARIN 85:
ECOLE NORMALE SUPERIEURE, PARIS 86: 1000
87:

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IOC  FRA-26-L
A. CAILOC
PROCESSUS DE TRANSFERT DES POLLUANTS: LOCALISATION DES 82:
ZONES DE DEPOT DES POLLUANTS DANS LE CONE DE DEJECTION 83:
MARIN DU DELTA DU RHONE 84:
85:
COMMISSARIAT A L'ENERGIE ATOMIQUE GIF SUR YVETTE 86: NIL
87:

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Dollars E.U.   Achieve   Non accepte
NIL: No Contribution  UND: Under Negotiation  WIT: Withdrawn
Aucune contribution   En cours de negoc.   Retire
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

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IOC  FRA-30-L
G. CAUWET
ROLE DE LA DYNAMIQUE MENTRAIRE EN MILIEU STRATIFIE
82: 83:
84: 5000 85: NIL 86: NIL 87:

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IOC  GRE-4-L
M. J. SCoufllos
STUDY OF THE TRANSPORT OF PARTICLES IN GREEK ESTUARIES
82: 83:
84: 3500 85: NIL 86: NIL 87:

DEPARTMENT OF CHEMISTRY UNIVERSITY OF ATHENS

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IOC  GRE-18-L
M. BONAZUNTAS
MEDITERRANEAN WATER POLLUTION FROM PINIOS RIVER
82: 83:
84: 85: 5000 86: NIL 87:

DEPARTMENT OF CIVIL ENGINEERING NATIONAL TECHNICAL UNIVERSITY ATHENS

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IOC  GRE-19-L
G. FERENTINOS
RIVER PLUME DISPERSION INTO COASTAL WATERS
82: 83:
84: 85: 6000 86: NIL 87:

DEPARTMENT OF GEOLOGY UNIVERSITY OF PATRAS

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IOC  GRE-35-L
M. BONAZUNTAS
OPTIMIZATION OF POLLUTANT TRANSFER REDUCTION TO THE MEDITERRANEAN FROM LAND-BASED AND RIVER SOURCES
82: 83:
84: 85: 86: 4000 87:

DEPARTMENT OF CIVIL ENGINEERING NATIONAL TECHNICAL UNIVERSITY OF ATHENS

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<td>GRE-41-L</td>
<td>Determination of Particle Size Distribution (PSD) of Colloidal Pollutants in Coastal Waters by Sedimentation Field-Flow Fractionation</td>
<td>1982</td>
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<td>Chemistry Department, Aristotelian University of Thessaloniki</td>
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<td>WMO</td>
<td>ISR-20-L</td>
<td>Meteorological Review for the Assessment of Atmospher in Sport of Pollutants into the Mediterranean</td>
<td>1982</td>
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<td>Hebrew Univ. of Jerusalem</td>
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<td>IAEA</td>
<td>ITA-3-L</td>
<td>Textural and Mineralogical Characters and Role in the Pollution Processes of Bottom Sediments in the Northern Adriatic Sea (See Also ITA/32.L)</td>
<td>1982</td>
<td>82</td>
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<td>Istituto Chimica Generale Ed Inorganica Sezione</td>
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<td>Mineralogica Venezia</td>
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<td>ITA-14-L</td>
<td>Study on the 137 C and 239 Pu Fluxes into Mediterranean Marine Environment (See Also ITA/76.K)</td>
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<td>Istituto di Zoologia, Universita di Parma</td>
<td>1986</td>
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- **UND:** Under Negotiation
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- **NAC:** Not Accepted
- **WIT:** Withdrawn
- **Non accepte:** Retire
## RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
**PROJETS DE RECHERCHE DANS LE CADRE DU MED POL**
(1982 - 1987)

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<td>IOC</td>
<td>ITA-16-L&lt;br&gt;T. La Noce&lt;br&gt;Study of factors controlling the fate and effects of some pollutants carried out from the Tiber River to the sea</td>
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<td>Istituto di Recerca sulle Acque Roma</td>
<td>85: NIL</td>
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<td>ITA-17-L&lt;br&gt;A. Palumbo&lt;br&gt;Pollutant transport models at the air-sea interface</td>
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<td>Istituto di Geologia e Geofisica Universita di Napoli</td>
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<td>IAEA</td>
<td>ITA-32-L&lt;br&gt;R. Frache&lt;br&gt;Chemistry and dynamics in the transport of heavy metals in particulate matter in Ligurian and Tyrrhenian sea (see also ITA/03.L)</td>
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<td>Istituto di Chimica Generale, Genova</td>
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<td>ITA-37-L&lt;br&gt;A. A. Orto&lt;br&gt;Transport mechanisms of pollutants at the sediment-water interface</td>
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<td>Istituto di Chimica Generale ed Inorganica Venezia</td>
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<td>ITA-41-L&lt;br&gt;G. Clerici&lt;br&gt;Transport of heavy metals into Mediterranean sea</td>
<td>82:</td>
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<td>OSServatorio Meteorologico di Brera, Milano</td>
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**Aucune contribution:** En cours de negoc.  
**Retire:** Non accepte
RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

IOC ITA-56-L
G. FIERRO
SEDIMENT AND PARTICULATE MATTER STUDIES IN THE LIGURIAN SEA; MECHANISM OF INTERACTION WITH POLLUTANT MATTER
82: 84:
85: 8000

ISTITUTO DI GEOLOGIA UNIVERSITA DI GENOVA
86: NIL
87:

WMO ITA-63-L
S. GUERZONI
RIVERINE AND ATMOSPHERIC TRANSPORT OF DUSTS AND CONTAMINANTS INTO THE MEDITERRANEAN REGION
82: 83:
84: 85:

ISTITUTO DI GEOLOGIA MARINE, CONSIGLIO NAZIONALE DELLE RICERCHE BOLOGNA
86: 3500
87:

WMO SPA-8-L
A. CRUZADO
STUDY OF LONG AND MEDIUM RANGE ATMOSPHERIC POLLUTANT TRANSPORT INTO THE NORTHWEST MEDITERRANEAN SEA
82: 83:
84: 85: 5000

CENTRO DE ESTUDIOS AVANZADOS DE BLANES (GIRONA)
86: NIL
87:

IOC SPA-16-L
J. ALBAIGES RIERA
TRANSPORT AND FATE OF WASTEWATER DISCHARGES OF THE CITY OF BARCELONA AND ADJACENT RIVERS (BESOS AND LLOBREGAT) INTO THE COASTAL WATER
82: 83:
84:
85: 8000

INSTITUTE OF BIO-ORGANIC CHEMISTRY BARCELONA
86: 3000
87:

IAEA YUG-10-L
V. PRAVDA
THE ROLE OF SEDIMENTS AND SUSPENDED MATTER IN THE TRANSFER OF SELECTED POLLUTANTS IN THE NORTHERN ADRIATIC BASIN
82: 83:
84: 4000
85: NIL

CENTRE FOR MARINE RESEARCH RUDGER BOSKOVIC INSTITUTE
86: NIL
87:

NNN: US Dollars            COM: Completed            NAC: Not Accepted
Dollars E.U.              Achieve                  Non accepte
NIL: No Contribution       UND: Under Negotiation   WIT: Withdrawn
Aucune contribution       En cours de negoc.      Retire
### Research Projects in the Framework of MED POL

**PROJETS DE RECHERCHE DANS LE CADRE DU MED POL (1982 - 1987)**

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<td>INTO THE MEDITERRANEAN REGION</td>
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<td>FEDERAL HYDROMETEOROLOGICAL INSTITUTE, BELGRADE</td>
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Jellyfish projects

Projets de recherche sur les méduses
# RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
# PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
# (1982 - 1987)

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<td>SURVEILLANCE DES PROLIFERATIONS DE MEDUSES URTICANTES DURANT LA PERIODE ESTIVALE 1985 SUR LE LITTORAL DE LA REGION PROVENCE-ALPES- COTE D'AZUR (FRANCE)</td>
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<td>INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE UNEITE INSERM &quot;MER ET SANTE&quot; NICE</td>
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<td>POISON CONTROL CENTER, CHILDREN'S HOSPITAL &quot;P.A. KYRIAKOU&quot;, ATHENS</td>
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<td>PHOSPHONOLIPIDS IN JELLYFISH</td>
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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHES DANS LE CADRE DU MED POL
(1982 - 1987)

UNEP GRE-25-Z
J.CASTRITSI-CATHARIOS
DISTRIBUTION QUANTITATIVE DES MEDUSES COMMUNES 82:
DANS LES ZONES PROCHE DE LA COTE DES ILES: HYDRA 83:
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85: NIL 86:
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GEOCHIMICA TREISTE NIL

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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
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UNEP ITA-55-Z
F. BOERO
PROJECT ON JELLYFISH ON THE MEDITERRANEAN SEA

ISTITUTO DI ZOOLOGIA UNIVERSITA DI GENOVA
86: 1500

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UNEP ITA-58-Z
L. SCALERA LIACI
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ISTITUTO DI ZOOLOGIA ED ANATOMIA COMPARATA UNIVERSITA DI BARI
86: 1500

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UNEP MAL-3-Z
V. AXIAX
MONITORING OF JELLYFISH SWARMINGS IN THE COASTAL WATERS OF MALTA

DEPARTMENT OF MATHEMATICS AND SCIENCES UNIVERSITY OF MALTA
86: 2000

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UNEP TUR-12-Z
F. BINGEL
PROJECT ON JELLYFISH IN THE MEDITERRANEAN SEA.
JELLYFISH MONITORING PROGRAMME FOR THE EASTERN MEDITERRANEAN COAST OF TURKEY

MIDDLE EAST TECHNICAL UNIVERSITY ERDEMIL ICEL
86: 3000

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UNEP YUG-30-Z
A. BENOVIC
INVESTIGATION OF JELLYFISHES (MEDUSAE) IN THE SOUTHERN ADRIATIC

BIOLOGICAL INSTITUTE DUBROVNIK

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UNEP YUG-32-Z
T. LEGOVIC
SWARMING AND TRANSPORT OF PELAGIA NOCTILUCA IN THE
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82: 83: 84: 85: 4000
CENTRE FOR MARINE RESEARCH RUDJEYUG035ZVIC INSTITUTE
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A. MALEJ
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82: 83: 84: 85: 5850
MARINE RESEARCH AND TRAINING CENTRE PIRAN 86: 3000 87:

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b) projets de recherche terminés en février 1987
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<td>P. BERNARD</td>
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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
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H. SHUVAL
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85: NIL
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84: 4000
85: NIL
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87:

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ROVINJ

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MARINE RESEARCH AND TRAINING CENTRE, PIRAN

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85: 3000
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A. NICOLAIDOU
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85: 3000
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87:

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85: 2000
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87:

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M. SARA
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85: NIL
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S. DI GERONIMO
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84: 2000
85: NIL
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FAO  LEB-1-I  
S. LAKKIS  
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82:  
83:  5000  
84:  2000  
85:  NIL  
86:  COM  
87:  
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82:  
83:  4000  
84:  2000  
85:  NIL  
86:  CCM  
87:  
BIOLOGICAL INSTITUTE, DUBROVNIK

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FAO  YUG-19-I  
D. ZAVODNIK  
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82:  
83:  6000  
84:  2000  
85:  NIL  
86:  COM  
87:  
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE,  
ROVINJ

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A. DEMETROPOULOS
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FISHERIES DEPARTMENT, MINISTRY OF AGRICULTURE, NICOSIA

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WHO EGY-3-K
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82: 83: 10000
84: 5000
85: NIL

HIGH INSTITUTE OF PUBLIC HEALTH ALEXANDRIA
86: COM
87: 

FAO EGY-7-K
I. H. ELSOKKARY
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82:
83: 3000
84: 3500
85: NIL

UNIVERSITY OF ALEXANDRIA RESEARCH CENTRE (UNARC),
ALEXANDRIA
86: COM
87: 

FAO GRE-22-K
A. V. CATSIKI
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82:
83:
84: 3000
85: 3000

NATIONAL CENTRE FOR MARINE RESEARCH, ATHENS
86: COM
87: 

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82:
83: 2800
84: 4500
85: NIL

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86: COM
87: 

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D. FUKS
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83: 3000
84: 6000
85: NIL

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c) 1986 and 1987 projects under negotiation

c) projets de recherche en cours de négociation
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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
PROJETS DE RECHERCHE DANS LE CADRE DU MED POL
(1982 - 1987)

IAEA ITA-85-A
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BY SPECTROFLUOROMETRY
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MERCURY IN ENVIRONMENTAL SAMPLES USING THE M-511
GOLD FILM MERCURY ANALYZER
CENTER FOR MARINE RESEARCH ROVINJ
86: 87: UND

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## Research Projects in the Framework of MED POL

**PROJETS DE RECHERCHE DANS LE CADRE DU MED POL**

**1982 - 1987**

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<td>FORMULATION OF SCIENTIFIC RATIONALE FOR MEDITERRANEAN ENVIRONMENTAL QUALITY CRITERIA</td>
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<td>M. V. TORREGROSSA</td>
<td>BACTERIAL AND CHEMICAL INDICATORS OF COASTAL WATERS POLLUTION OF HUMAN ORIGIN</td>
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RESEARCH PROJECTS IN THE FRAMEWORK OF MED POL
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86: 87: UND

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<td>S. Pierini</td>
<td>Low Frequency Oscillations in the Mediterranean Sea</td>
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<td>F. Stravisi</td>
<td>A Revision of the Climatological Series in the Northern Adriatic with Respect to Oceanographic Processes</td>
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<td>Study of the Influence of Atmospheric Vorticity on Transport Processes in the North Adriatic</td>
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<td>D. Justic</td>
<td>Oxygen Content and Oxygen Metabolism of the Northern Adriatic Sea: A Model Approach</td>
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ISTITUTO SUPERIORE DI SANITA, ROMA

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WMO ITA-60-L
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as at February 1987

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<td>UNEP/WHO: Guidelines for monitoring the quality of coastal recreational and shellfish-growing waters.</td>
<td>draft (E) 09.05.84</td>
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<td>UNEP/WHO: Determination of total coliforms in sea-water by the membrane filtration culture method.</td>
<td>Rev.1(E) 31.08.83</td>
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<td>UNEP/WHO: Determination of faecal coliforms in sea-water by the membrane filtration culture method.</td>
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<td>UNEP/WHO: Determination of faecal coliforms in bivalves by multiple test tube method.</td>
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<td>UNEP/WHO/IAEA: Determination of total coliforms in sea-water by multiple test tube (MPN) method.</td>
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<td>No. 28</td>
<td>UNEP/WHO/IAEA: Determination of <em>Staphylococcus aureus</em> in sea-water and sewage by the membrane filtration culture method.</td>
<td>draft(E) 30.06.86</td>
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<td>No. 30</td>
<td>UNEP/WHO/IAEA: Isolation/enumeration of salmonella from sea-water and sewage.</td>
<td>in preparation (E) 1987</td>
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* Rev. refers to the revised issue of a method. (E) and (F) denote French and English issues.
D UNEP/WHO/IAEA: Determination of faecal coliforms in estuarine waters, suspended matter and sediments. in preparation

M UNEP/WHO/IAEA: Statistical methods for the evaluation of results from monitoring the quality of coastal recreational and shellfish-growing waters. in preparation

- UNEP/WHO/IAEA: Determination of fungi in sand by the membrane filtration culture method in preparation

B. Chemical contaminants in marine organisms

No. 6 UNEP/FAO/IAEA: Guidelines for monitoring chemical contaminants in marine organisms. in preparation

No. 7 UNEP/FAO/IOC/IAEA: Sampling of selected marine organisms and sample preparation for trace metal analysis.

No. 8 UNEP/FAO/IOC/IAEA: Determination of total mercury in selected marine organisms by cold vapour atomic absorption spectrophotometry.

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No. 11 UNEP/FAO/IOC/IAEA: Determination of total cadmium, zinc, lead and copper in selected marine organisms by flameless atomic absorption spectrophotometry.

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<td>UNEP/IAEA</td>
<td>Determination of DDTs, PCBs, PCCs and other hydrocarbons in sea-water by gas chromatography.</td>
<td>draft(E) 21.09.82</td>
</tr>
<tr>
<td>18</td>
<td>UNEP/IOC</td>
<td>Determination of total dissolved cadmium in sea-water by differential pulse anodic stripping voltammetry.</td>
<td>draft(E) 16.09.83</td>
</tr>
<tr>
<td>B</td>
<td>UNEP/IOC/IAEA</td>
<td>Monitoring of petroleum hydrocarbons in sea-water.</td>
<td>in preparation</td>
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C. Chemical contaminants in sea-water

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<td>40</td>
<td>UNEP/FAO/IOC/IAEA</td>
<td>Determination of DDTs and PCBs in selected marine organisms by capillary column gas chromatography.</td>
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<td>S</td>
<td>UNEP/IOC/FAO/IAEA</td>
<td>Guidelines for the control and management of analytical quality assurance for marine organism monitoring.</td>
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<td>U</td>
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<td>Determination of total chromium in selected marine organisms by atomic absorption spectrophotometry.</td>
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<td>UNEP/FAO/IOC/IAEA</td>
<td>Determination of total cobalt in selected marine organisms by atomic absorption spectrophotometry.</td>
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<td>Determination of organotin compounds in selected marine organisms.</td>
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<td>BZ</td>
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<td>Determination of organotin compounds in marine sediments.</td>
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<tr>
<td>CZ</td>
<td>UNEP/IOC/FAO</td>
<td>Determination of organophosphorus compounds in selected marine organisms.</td>
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D. Chemical contaminants in marine sediments and suspended matter

No. 17 UNEP/IAEA: Determination of DDTs, PCBs, PCCs and other hydrocarbons in marine sediments by gas-liquid chromatography. draft(E) 22.09.82

No. 20 UNEP/TOC: Monitoring of petroleum hydrocarbons in sediments. in preparation draft(E) 1988

No. 26 UNEP/IAEA: Determination of total mercury in marine sediments and suspended solids by cold vapour atomic absorption spectrophotometry. draft(E) 25.03.85

No. 27 UNEP/IAEA: Determination of total cadmium in marine sediments by flameless atomic absorption spectrophotometry. draft(E) 25.03.85

No. 31 UNEP/IAEA: Determination of total chromium in marine sediments by flameless atomic absorption spectrophotometry. draft(E) 17.07.85

No. 32 UNEP/IAEA: Determination of total cobalt in marine sediments by flameless atomic absorption spectrophotometry. draft(E) 17.07.85

No. 33 UNEP/IAEA: Determination of total copper in marine sediments by flameless atomic absorption spectrophotometry. draft(E) 17.07.85

No. 34 UNEP/IAEA: Determination of total lead in marine sediments by flameless atomic absorption spectrophotometry. draft(E) 17.07.85

No. 35 UNEP/IAEA: Determination of total nickel in marine sediments by flameless atomic absorption spectrophotometry. draft(E) 17.07.85

No. 36 UNEP/IAEA: Determination of total vanadium in marine sediments by flameless atomic absorption spectrophotometry. draft(E) 17.07.85

No. 37 UNEP/IAEA: Determination of total iron in marine sediments by flame atomic absorption spectrophotometry. draft(E) 01.03.86

No. 38 UNEP/IAEA: Determination of total manganese in marine sediments by flame atomic absorption spectrophotometry. draft(E) 01.03.86

No. 39 UNEP/IAEA: Determination of total zinc in marine sediments by flame atomic absorption spectrophotometry. draft(E) 01.03.86
R  UNEP/IOC/IAEA: Guidelines on the sampling and preparation of sediments for marine pollution monitoring. in preparation

T  UNEP/IOC/IAEA: Guidelines for the control and management of analytical quality assurance for marine sediment monitoring. in preparation

DZ UNEP/IOC/IAEA: Determination of organophosphorous in preparation compounds in marine sediments.

E. Chemical contaminants in estuarine waters and suspended matter

No. 19 UNEP/IOC/IAEA: Determination of total mercury in estuarine waters and suspended sediment by cold vapour atomic absorption spectrophotometry. draft (E) 25.03.85

C  UNEP/IAEA: Guidelines for monitoring of estuarine waters and suspended matter. draft(E) April 1987

E  UNEP/WHO/IAEA: Determination of phosphorus in suspended matter and sediments in preparation draft(E) April 1987

F  UNEP/WHO/IAEA: Determination of nitrogen in suspended matter and sediments. in preparation draft(E) April 1987

G  UNEP/WHO/IAEA: Determination of BOD₅ and COD in estuarine waters. in preparation draft(E) April 1987

I  UNEP/IOC/IAEA: Determination of total cadmium in estuarine waters and suspended matter. in preparation draft(E) 1988

No. 41 UNEP/IOC/IAEA: Guidelines for the determination of riverine input of contaminants to estuaries. in preparation draft(E) April 1987

F. Chemical contaminants on beaches

No. 15 UNEP/IOC/IAEA: Monitoring of tar on marine beaches. draft(E) 25.03.85

G. Atmospheric chemical contaminants

No. 24 UNEP/WHO/IAEA: Sampling of aerosols and wet precipitation for analysis of chemical pollutants. draft(E) 12.04.85

No. 42 UNEP/IAEA: Determination of selected trace metals in preparation in aerosols and in wet precipitation. draft(E) April 1987
P  UNEP/IAEA: Determination of halogenated hydrocarbons in aerosols and in wet precipitation. in preparation draft(E) 1988

Q  UNEP/WMO/IAEA: Sampling of dry deposition. in preparation draft(E) 1988

H. Effects on marine organisms and ecosystems

No. 25  SPC/UNEP: Coral reef monitoring handbook. (E) 27.08.84

A  UNEP: Sampling and identification of common Mediterranean Scyphomedusae and evaluation of their occurrence. in preparation draft(E) 1987

Nos 43, 44, 45  UNEP/FAO/IAEA: Acute biological toxicity tests. in preparation drafts(E) 1987

J  UNEP/FAO/IAEA: Biological non-acute toxicity tests (five methods). in preparation drafts(E) 1987

I. Standard physical, chemical and meteorological observations

K  UNEP/IOC/IAEA: Determination of basic oceanographic and meteorological conditions. in preparation draft(E) 1987

L  UNEP/IOC/IAEA: Determination of standard physical and chemical parameters. in preparation draft(E) 1987

J. Miscellaneous methods

AD  UNEP/WHO/IAEA: Determination of methylmercury, total mercury and selenium in human hair. in preparation draft(E) April 1987

AE  UNEP/WHO/IAEA: Guidelines for monitoring and epidemiological studies on health effects of methylmercury. in preparation

-  UNEP/IAEA: Guidelines for the use of Reference Methods in marine pollution studies. in preparation draft(E) April 1987

-  UNEP/IAEA: Catalogue of Reference Methods for Marine Pollution Studies. (E) 30.06.86

-  UNEP/IAEA: Development of Reference Methods for selected radionuclide measurements in marine matrices. in preparation
Annex V

List of MAP Technical Series

Published in 1986

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>UNEP/WHO/Organization</th>
<th>Pages</th>
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<tbody>
<tr>
<td>1</td>
<td>Baseline studies and monitoring of oil and petroleum hydrocarbons in marine waters (MED POL I). MAP Technical Reports Series No. 1. UNEP, Athens 1986.</td>
<td>UNEP/IOC/WMO</td>
<td>103</td>
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<tr>
<td>2</td>
<td>Baseline studies and monitoring of metals, particularly mercury and cadmium, in marine organisms (MED POL II). MAP Technical Reports Series No. 2. UNEP, Athens 1986.</td>
<td>UNEP/FAO</td>
<td>227</td>
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<td>3</td>
<td>Baseline studies and monitoring of DDT, PCBs and other chlorinated hydrocarbons in marine organisms (MED POL III). MAP Technical Reports Series No. 3. UNEP, Athens 1986.</td>
<td>UNEP/FAO</td>
<td>135</td>
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<td>4</td>
<td>Research on the effects of pollutants on marine organisms and their populations (MED POL IV). MAP Technical Reports Series No. 4. UNEP, Athens 1986.</td>
<td>UNEP/FAO</td>
<td>125</td>
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<tr>
<td>5</td>
<td>Research on the effects of pollutants on marine communities and ecosystems (MED POL V). MAP Technical Reports Series No. 5. UNEP, Athens 1986.</td>
<td>UNEP/FAO</td>
<td>153</td>
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<tr>
<td>7</td>
<td>Coastal water quality control (MED POL VII). MAP Technical Reports Series No. 7. UNEP, Athens 1986.</td>
<td>UNEP/WHO</td>
<td>433</td>
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<td>8</td>
<td>Biogeochemical studies of selected pollutants in the open waters of the Mediterranean (MED POL VIII). MAP Technical Reports Series No. 8. UNEP, Athens 1986.</td>
<td>UNEP/IAEA/IOC</td>
<td>49</td>
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Published in 1987

No. 10 UNEP/FAO: Research on the toxicity, persistence, bioaccumulation, carcinogenicity and mutagenicity of selected substances (Activity G). MAP Technical Reports Series No. 10. UNEP, Athens 1987. 110

No. 11 UNEP: Rehabilitation and reconstruction of Mediterranean historic settlements. MAP Technical Reports Series No. 11. UNEP, Athens 1987. 160
Annex VI

Summary of Intercalibration Exercises

1986 Exercises

1. **MED POL: Petroleum Hydrocarbon Intercalibration**

   Samples distributed: SD-K-1 (sediment) and MA-K-1 (oyster homogenate).
   Initial distribution date: 23 October 1985.
   Reply date: 31 January 1986.
   Replies received by 5 January 1987: 9
   Participant laboratories: 21 - Cyprus (1), Egypt (3), France (1), Greece (3), Lebanon (1), Libya (1), Malta (1), Spain (5), Tunisia (1), Turkey (2), Yugoslavia (2).

2. **MED POL participants in IAEA Intercalibration**

   Samples distributed: MA-A-3/TM (shrimp, trace metals);
   MA-B-3/TM (fish, trace metals);
   MA-A-3/OC (shrimp, organochlorines);
   MA-B-3/OC (fish, organochlorines).
   Initial distribution date: 23 September 1985.
   Reply date: 31 May 1986.
   MA-B-3/TM: 2;
   MA-A-3/OC: 7;
   MA-B-3/OC: 11.
   Participant States from MED POL: 7 - Egypt, France, Italy, Libya, Spain, Turkey, Yugoslavia.

3. **MED POL: Intercalibration of trace metals and organochlorines**

   Samples distributed: MA(S)-MED-86/TM (shrimp, trace metals);
   MA(S)-MED-86/OC (shrimp, organochlorines);
   MA(F)-MED-86/TM (fish, trace metals);
   MA(F)-MED-86/OC (fish, organochlorines).
   Initial distribution date: 14 August 1986.
   Reply date: 1 December 1986.
   Replies received by 5 January 1987: MA(S)-MED-86/TM: 8;
   MA(S)-MED-86/OC: 3;
   MA(F)-MED-86/TM: 8;
   MA(F)-MED-86/OC: 3.
   Participant laboratories: 34 - Algeria (3), Cyprus (2), Egypt (3), Israel (1), Italy (1), Lebanon (2), Malta (1), Morocco (4), Spain (1), Yugoslavia (16) - of which 21 laboratories participate in trace metal intercalibration only and 6 laboratories for organochlorines only.
Reports published in 1986 from previous exercises


   Participant laboratories: 13 - Cyprus (1), France (1), Italy (2), Spain (8), Yugoslavia (1).


   Participant laboratories: 16 - Cyprus (1), France (2), Italy (3), Spain (8), Yugoslavia (2).


   Participant laboratories: 18 - France (1), Greece (2), Israel (1), Italy (3), Morocco (1), Spain (6), Tunisia (1), Yugoslavia (3).

Available (limited) stocks of reference material

Trace Metals

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<td>MA-A-1</td>
<td>Copepods</td>
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Chlorinated Hydrocarbons

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<tr>
<td>MA-M-2/OC</td>
<td>Mussels</td>
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<tr>
<td>MA-A-1/OC</td>
<td>Copepods</td>
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<tr>
<td>MA-A-2/OC</td>
<td>Fish</td>
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<tr>
<td>SD-M-1</td>
<td>Sediment</td>
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Petroleum Hydrocarbons

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<tr>
<td>MA-K-1</td>
<td>Oyster homogenate</td>
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Annex VII

List of Maintenance Services

A. Service visits to the National Institutions, Regional Activity Centres and other visits (January 1986 - February 1987)

<table>
<thead>
<tr>
<th>Duty Period</th>
<th>Destination</th>
<th>Purpose</th>
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<tbody>
<tr>
<td>1. 03-08 February 1986</td>
<td>SPA/RAC, Salammbo Tunis</td>
<td>Installation of WANG Data/Word Processing System</td>
</tr>
<tr>
<td>2. 06-07 February 1986</td>
<td>INSTOP, La Goulette Tunis</td>
<td>Service of: - Recorder Mod 9176 - VARIAN automatic sample Dispenser</td>
</tr>
<tr>
<td>3. 10-12 March 1986</td>
<td>WANG-France, Paris</td>
<td>OIS-50/1 System training course</td>
</tr>
<tr>
<td>4. 15-16 March 1986</td>
<td>Fisheries Dept. Nicosia, Cyprus</td>
<td>Service of: - Aanderaa current meter - Aanderaa tape reader link to Apple II computer</td>
</tr>
<tr>
<td>5. 16-23 March 1986</td>
<td>Marine Research Center, Beirut</td>
<td>Service of: - VARIAN GC Mod 3700 - VARIAN recorder 9176 - VARIAN carbon rod atomizer, CRA-90</td>
</tr>
</tbody>
</table>

Note: These instruments were transported to the Nicosia Laboratory to be serviced.

<p>| 6. 02-05 April 1986  | PAP/RAC, Split Yugoslavia   | Installation of WANG Data/WP System (new OIS-50) as a replacement for the initially installed one in September 1985 |
| 7. 11-15 May 1986    | ISMAL, Alger                | Service of: - VARIAN GC Mod 3700 - VARIAN AAS Mod 1250 - Serial interface for Perkin-Elmer AAS |
| 8. 14 May 1986       | Ministry of Hydraulics, Alger | Meeting with Mr. Benaji and Mr. Hamza |</p>
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<td>9. 14 May 1986</td>
<td>ANPE, Alger</td>
<td>Assessment of the present situation, and state of the instrument</td>
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<td>10. 14 May 1986</td>
<td>University of Alger</td>
<td>Assessment of the present situation, and state of the instrument</td>
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<td>Chromatography Laboratory</td>
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<tr>
<td>11. 21-22 May 1986</td>
<td>WANG-France</td>
<td>WANG PC system/supervision training course</td>
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<td>12. 09-10 July 1986</td>
<td>VARIAN, Zug</td>
<td>GC 3400 Service training course</td>
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<td>13. 21-24 July 1986</td>
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<td>14. 25-27 July 1986</td>
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<td>- VARIAN AAS Mod 1250</td>
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<td>15. 28-31 July 1986</td>
<td>PAP/RAC, Split</td>
<td>To complete the installation of the WANG System (OIS-50 and DW/OS-55)</td>
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<td>Yugoslavia</td>
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<tr>
<td>17. 03-04 August 1986</td>
<td>Center for Subtropic Cultures and Environmental Protection, Bar Yugoslavia</td>
<td>Installation of digital readout accessory to their PYE-UNICAM AAS Mod SP9-800, and, services of:</td>
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<tr>
<td></td>
<td></td>
<td>- Olivetti minicomputer</td>
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<tr>
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<td>- VARIAN recorder 9176</td>
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<td>18. 13-14 October 1986</td>
<td>SPA/RAC, Salammbo Tunis</td>
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<td>20. 15-19 December 1986</td>
<td>VARIAN, Zug Switzerland</td>
<td>AAS 1275ABD/1475ABD Service training course</td>
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**Summary**

- Number of countries visited ........................................... 7
- Number of institutions visited ........................................ 16
- Number of visits ...................................................... 22
- Number of instruments serviced ..................................... 26
- Number of the installed instruments
  (4 WANG computers, 1 VARIAN GC, 1 digital readout unit) .......... 6
### B. Planned visits (March 1987 - December 1987)

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<td>March 1987</td>
<td>INSTOP, La Goulette</td>
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<td>- WANG DW/OS-55</td>
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<td>May 1987</td>
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<td>May 1987</td>
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<td>- VARIAN GC 3700</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Aanderaa current meter</td>
</tr>
<tr>
<td>13. November 1987</td>
<td>Marine Research and Training Centre Piran,</td>
<td>Service of:</td>
</tr>
<tr>
<td></td>
<td>Yugoslavia</td>
<td>- VARIAN AAS 1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- VARIAN GC 2400</td>
</tr>
<tr>
<td>14. November 1987</td>
<td>Center for Marine Research Rovinj, Yugoslavia</td>
<td>Service of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- VARIAN AAS 1250</td>
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<tr>
<td></td>
<td></td>
<td>- VARIAN GC 2400</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Aanderaa current meter</td>
</tr>
</tbody>
</table>

**Note:** Possible emergency service visits to any National Institutions participating in the MED POL
C. Supplies to the National Institutions (January 1986 ~ February 1987)

<table>
<thead>
<tr>
<th>Duty Period</th>
<th>Destination</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 1986</td>
<td>METU, Erdemli-Iğel Turkey</td>
<td>- H2 short lamp</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Xenon arc lamp</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Ceramic injector heater</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Metering valve</td>
</tr>
<tr>
<td>April 1986</td>
<td>ISMAL, Alger</td>
<td>14 books concerning radiocative contamination of the marine environment</td>
</tr>
<tr>
<td>May 1986</td>
<td>ISMAL, Alger</td>
<td>- Hamilton syringe cleaner</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hamilton needle cleaning kit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- GC PCB standards</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Pen, red, medium dry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Pesticide glass column</td>
</tr>
<tr>
<td>July 1986</td>
<td>Center for Marine Research Split, Yugoslavia</td>
<td>Aanderaa current meter parts:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- &quot;O&quot; ring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- &quot;C&quot; clamp</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Ten split pins 2462</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Five split pins 2062</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Spiral wire for lower spool holder</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Rotor tester (synchro)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Conductivity tester</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Set of screws</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Five magnetic tapes</td>
</tr>
<tr>
<td>July 1986</td>
<td>Oceanographic Inst. Split, Yugoslavia</td>
<td>Bubble Flow Meter (GC)</td>
</tr>
<tr>
<td>August 1986</td>
<td>PAP/RAC, Split Yugoslavia</td>
<td>World Language Word Processing</td>
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<tr>
<td></td>
<td></td>
<td>Software Package for WANG PC</td>
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<tr>
<td>October 1986</td>
<td>METU, Erdemli-Iğel Turkey</td>
<td>VARIAN GC parts:</td>
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<tr>
<td></td>
<td></td>
<td>- Anode probe</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cathode probe</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Oven temperature probe</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Oven cartridge heater</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Det. temperature probe</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Two heat sinks with SCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 3 transistors 2N3643</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 3 transistors 2N646</td>
</tr>
<tr>
<td>January 1987</td>
<td>Marine Research and Training Centre, Piran, Yugoslavia</td>
<td>- Blue lamp for Turner fluorometer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Lamp adapter</td>
</tr>
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</table>
Annex VIII

List of training and fellowships

A. List of training courses granted to Mediterranean scientists
(January 1986 - February 1987)

<table>
<thead>
<tr>
<th>Scientists and institutions</th>
<th>Dates and institutions of training</th>
<th>Purpose of training/visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYPRUS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ms. M. Radjichristophorou</td>
<td>20-23 January 1986</td>
<td>Discussions on the statistical aspects of the effects of thermal effluents on ecosystems</td>
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<tr>
<td>Ministry of Agriculture</td>
<td>University of Athens</td>
<td></td>
</tr>
<tr>
<td>Fisheries Dept.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nicosia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ms. A. Nicolaïdou</td>
<td>29 Nov.-9 Dec. 1986</td>
<td>Consultation on data processing on benthos</td>
</tr>
<tr>
<td>Univ. of Athens</td>
<td>Dept. of Fisheries</td>
<td></td>
</tr>
<tr>
<td>Athens</td>
<td>Nicosia, Cyprus</td>
<td></td>
</tr>
<tr>
<td>MOROCCO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mr. E. Jellal</td>
<td>07-31 January 1986</td>
<td>Sampling and analysis of waste waters</td>
</tr>
<tr>
<td>Lab. G. Sanitaire</td>
<td>Lab. IRH, Nancy</td>
<td></td>
</tr>
<tr>
<td>E.M.I.</td>
<td>France</td>
<td></td>
</tr>
<tr>
<td>Rabat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YUGOSLAVIA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ms. M. Horvat</td>
<td>31 Mar.-15 Apr. 1986</td>
<td>Trace element analysis by GC</td>
</tr>
<tr>
<td>Josef Stefan Inst.</td>
<td>IPREMÉR</td>
<td></td>
</tr>
<tr>
<td>Ljubljana</td>
<td>Nantes</td>
<td></td>
</tr>
<tr>
<td>Ms. A. Malej</td>
<td>15 June- 6 July 1986</td>
<td>Meet scientists working on jellyfish programme</td>
</tr>
<tr>
<td>Univ. of Ljubljana</td>
<td>METU</td>
<td></td>
</tr>
<tr>
<td>Piran</td>
<td>Erdemli, Turkey</td>
<td></td>
</tr>
<tr>
<td>Mr. M. Gacic</td>
<td>26 Jan.-1 Feb. 1987</td>
<td>Analysis of sea-level data concerning meso-scale variability</td>
</tr>
<tr>
<td>Inst. of Oceanography and Fisheries</td>
<td>Univ. of Athens</td>
<td>Athens, Greece</td>
</tr>
</tbody>
</table>
B. List of fellowships granted to Mediterranean scientists
(January 1986 - February 1987)

IX International Symposium "Chemistry in the Mediterranean, Primosten, Yugoslavia (1-7 May 1986)

N. FRILIGOS
National Centre for Marine Research
Aghios Kosmas
16604 Athens
Greece

Have HORNUNG
Israel Oceanographic and Limnological Research Ltd.
P.O. Box 8030
Tel-Shikmona
Haifa 31080
Israel

A. Cemal SAYDAM
Institute of Marine Sciences
Middle East Technical University
P.K. 28
Erdenli/Igel
Turkey

Bachir RAISSOUNI
Institut Agronomique et Vétérinaire Hassan II
Département de Pharmacie, Pharmacologie,
Toxicologie et Biochimie
B.P. 6202
Rabat-Institut
Rabat
Morocco

3rd International Conference on Environmental Quality, and Ecosystem Stability, Jerusalem, Israel (1-4 June 1986)

A. V. CATSIKI
National Centre for Marine Research
Aghios Kosmas
16604 Athens
Greece

A. PICCIONI
Istituto Superiore di Sanita
Viale Regina Elena 299
00161 Rome
Italy

Adam BENOVIĆ
Biological Institute
P.O. Box 39
51001 Dubrovnik
Yugoslavia

Chemicals in the Environment, Lisbon, Portugal (30 June - 3 July 1986)

K. FYTIANOS
Laboratory of Analytical Chemistry
School of Physics and Mathematics
University of Thessaloniki
54006 Thessaloniki
Greece

Third International Symposium on Environmental Management, for Developing Countries, Istanbul, Turkey (6-12 August 1986)

V. ONOFRI
Biological Institute
P.O. Box 39
51001 Dubrovnik
Yugoslavia

VII Symposium on Animal and Plant Toxins, Prague, Chechoslovakia (18-22 August 1986)

Zvonimir MARETIC
Medical Center
52000 Pula
Yugoslavia

Second International Conference Environmental Contamination
Amsterdam, Holland (23-25 September 1986)

Tomislav ZVONARIC
Institute of Oceanography and Fisheries
P.O. Box 114
58000 Split
Yugoslavia
La mise en œuvre de la Directive eaux de baignade, dans le Etats Membres de la Communauté, Montpellier, France (12-15 October 1986)

Rafael MUJERIEGO
Professor of Sanitary Engineering
Universitat Politècnica de Barcelona
Escola Tecnica Superior d'Enginyers de Camins, Canals i Ports
Jordi Girona Salgado 31
Barcelona 34
Spain

VIII ICSEM/IOC/UNEP Workshop on Marine Pollution, of the Mediterranean Palma de Mallorca, Spain (20-22 October 1986)

Ali BAKALÉM
ISMAL
B.P. 90
1er Novembre
Alger
Algeria

Osma T. ABOUL-DAHAB
Oceanography Department
Faculty of Science
University of Alexandria
Moharrem Bey
Alexandria
Egypt

M. F. MACKLAD
Pesticides Research Station
Agricultural Research Centre
Etay El-Baroud
Egypt

George ARAPIS
S.E.R.E.
Département de Protection
Centre d'Etudes Nucléaires
92265 Fontenay-aux-Roses Cedex
France

Jacqueline GOY
Ichtyologie générale et appliquée
Muséum National d'Histoire naturelle
43 rue Cuvier
75005 Paris Cédex 5
France
Efstathios BALOPOULOS
National Centre for Marine Research
16604 Hellinikon
Greece

Joanna CASTRITSI-CATHARIOS
Department of Biology
Faculty of Science
University of Athens
15771 Athens
Greece

N. Ch. FRILIGOS
National Centre for Marine Research
16604 Hellinikon
Greece

K. PITIANOS
Environmental Pollution Control Laboratory
Aristotelian University of Thessaloniki
54006 Thessaloniki
Greece

A. HALKIAS
Athens School of Hygiene
Department of Nutrition and Biochemistry
Leof. Alexandras 196
Athens
Greece

C. PAPACONSTANTINOU
National Centre for Marine Research
16604 Hellinikon
Greece

E. PAPATHANASSIOU
National Centre for Marine Research
16604 Hellinikon
Greece

Fanny VOUTSINOU-TALIADEOURI
National Centre for Marine Research
16604 Hellinikon
Greece

Haya HORNUNG
Israel Oceanographic and Limnological Research Ltd.
Tel-Shikmona
P.O. Box 8030
Haifa 31080
Israel
Lorenzo VILLA
Ispettore Generale per i Collegamenti internazionali
Ispettorato Centrale per la difesa del Mare
Ministero della Marina Mercantile
Viale dell'Arte 16
00144 Roma
Italy

Victor AXIAK
Mathematics and Science Department
University of Malta
Msida
Malta

Ahmet KOCATAS
Faculty of Science
Hydrobiology and Water Resources
Research Center University of Ege
Urla/Izmir
Turkey

Hüseyin UYSAL
Faculty of Science
Hydrobiology and Water Resources
Research Center University of Ege
Urla/Izmir
Turkey

Adam BENOVIC
Biological Institute
P.O. Box 39
50000 Dubrovnik
Yugoslavia

J. DUMOVOV (D.S.A. only)
Institute of Oceanography and Fisheries
P.O. Box 114
Split
Yugoslavia

Neda FANUKO
Institute of Biology
University of Ljubljana
MRIC, JLA 65
66330 Piran
Yugoslavia
Milena HORVAT  
J. Stefan Institute  
E. Kardelj University  
Jamova Ulica 39  
P.O. Box 61111  
61000 Ljubljana  
Yugoslavia

Cedomil LUCU  
Centre for Marine Research  
Ruder Boskovic Institute  
G. Paliaga 5  
52210 Rovinj  
Yugoslavia

Alenka MALEJ  
Institute of Biology  
University of Ljubljana  
MRIC, JLA 65  
66330 Piran  
Yugoslavia

Jasenka PAVICIC  
Centre for Marine Research  
Ruder Boskovic Institute  
G. Paliaga 5  
52210 Rovinj  
Yugoslavia

Nena PICER  
Center for Marine Research  
Ruder Boskovic Institute  
P.O. Box 1016  
41001 Zagreb  
Yugoslavia

Mladen PICER  
Center for Marine Research  
Ruder Boskovic Institute  
P.O. Box 1016  
41001 Zagreb  
Yugoslavia

(D.S.A. only)

Mirjana SKREBLIN  
Centre for Marine Research  
Ruder Boskovic Institute  
G. Paliaga 5  
52210 Rovinj  
Yugoslavia
Peter TUSNIK
Institute of Biology
University of Ljubljana
MRIC, JLA 65
66330 Piran
Yugoslavia

Ilija VUKADIN
Institute of Oceanography and Fisheries
P.O. Box 114
Split
Yugoslavia

Tomislav ZVONARIC
Institute of Oceanography and Fisheries
P.O. Box 114
Split
Yugoslavia

Training Course on the Coastal Zone Monitoring and Management
Alexandria, Egypt (16 November - 7 December 1986)

Victor Elie MAJJAR
Research Assistant
Marine Research Centre
National Council for Scientific Research
P.O. Box 123, Jounieh
Lebanon

Marie M. TELBEIAN
Research Assistant
Marine Research Centre
National Council for Scientific Research
P.O. Box 123, Jounieh
Lebanon

Carmel SAMMUT
Analyst
Department of Health and Environment
15, Merchants Street, Valletta
Malta

Vilma BUTTIGNONI
Health Protection Institute
Nazorova 3, 52000 Pula
Yugoslavia
Massimo DEVESCOVI
Center for Marine Research
Ruder Boskovic Institute
G. Paliaga 5, 52210 Rovinj
Yugoslavia

Ivanka KRAUS
Institute for Subtropical Cultures and
Environmental Protection
Topolica bb, 85000 Bar
Yugoslavia

Valentina TURK
Institute of Biology
University of Ljubljana
Marine Research and Training Centre Piran
MRIC, JLA 65, 66330 Piran
Yugoslavia
Annex IX

Budget for 1986 and 1987
(taken from UNEP/IG.56/5, Annex VIII, pages 7-10)
(in US dollars)

(SECTION I)

CHAPTER 3 - MED POL - MONITORING

<table>
<thead>
<tr>
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<th>1986</th>
<th>1987</th>
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<tbody>
<tr>
<td><strong>1. PERSONNEL A/</strong></td>
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<td></td>
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<tr>
<td>Experts/Consultants</td>
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<td></td>
</tr>
<tr>
<td>- FAO Fishery Expert, P-5</td>
<td>12mm</td>
<td>65,000</td>
</tr>
<tr>
<td>- WHO Senior Scientist, P-5</td>
<td>12mm</td>
<td>73,000</td>
</tr>
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<td>- IAEA Maintenance Engineer, P-3</td>
<td>12mm</td>
<td>60,000</td>
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<tr>
<td>Administrative Support</td>
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<td></td>
</tr>
<tr>
<td>- FAO Secretary, Athens, Local G-4</td>
<td>12mm</td>
<td>12,000</td>
</tr>
<tr>
<td>- WHO Secretary, Athens, Local G-4</td>
<td>12mm</td>
<td>14,000</td>
</tr>
<tr>
<td>- WHO Secretary, Copenhagen, Loc.G-4</td>
<td>6mm</td>
<td>8,000</td>
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<tr>
<td>- IAEA Lab. Assist., Monaco, Local G-5</td>
<td>12mm</td>
<td>25,000</td>
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<tr>
<td><strong>Component Total</strong></td>
<td>257,000</td>
<td>269,000</td>
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</table>

| **2. TRAVEL B/**              |      |      |
| - WHO                        | 10,000 | 10,000 |
| - FAO                        | 10,000 | 10,000 |
| - IOC/UNESCO                 | 5,000  | 5,000  |
| - WMO                        | 5,000  | 5,000  |
| - IAEA                       | 20,000 | 20,000 |
| **Component Total**          | 50,000 | 50,000 |

A/ Cost of UNEP staff involved in MED POL covered through Chapter I (Co-ordination) of MAP budget.

B/ Cost of travel of UNEP staff related to MED POL covered through Chapter I (Co-ordination) of MAP budget.
<table>
<thead>
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<tbody>
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<td><strong>3. SUBCONTRACTS</strong></td>
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<tr>
<td>- Intercalibration of petroleum</td>
<td>6,000</td>
<td>-</td>
</tr>
<tr>
<td>hydrocarbon analytical methods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(through IOC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Printing of VIII ICSEM/IOC/UNEP</td>
<td>-</td>
<td>15,000</td>
</tr>
<tr>
<td>proceedings (ICSEM through the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secretariat)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Assistance through agreements</td>
<td>316,600</td>
<td>431,000</td>
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<tr>
<td><strong>Component Total</strong></td>
<td>322,600</td>
<td>446,000</td>
</tr>
</tbody>
</table>

| **4. MEETINGS/TRAINING/WORKSHOPS/FELLOWSHIPS** |      |      |
| **Meetings:**                     |      |      |
| - Working Group for Scientific and | 40,000 | 45,000 |
| Technical Co-operation             |      |      |
| **Training:**                     |      |      |
| - On-job training (through the    | 80,000 | 70,000 |
| Secretariat)                      |      |      |
| **Fellowships:**                  |      |      |
| - Fellowships for attendance at  |      |      |
| meetings:                         |      |      |
| - VIII ICSEM/IOC/UNEP Workshops   | 30,000 | -    |
| - Preparation of documentation    | -    | 30,000 |
| to assess results of monitoring   |      |      |
| activities                        |      |      |
| - Consultation meeting on LBS     | -    | 15,000 |
| monitoring (WHO)                  |      |      |
| - Other meetings                  | 30,000 | 25,000 |
| **Component Total**               | 180,000 | 185,000 |

<p>| <strong>5. EQUIPMENT C/</strong>              |      |      |
| <strong>Expendable</strong>                   |      |      |
| - Spare parts for common         | 23,000 | 25,000 |
| maintenance service (through IAEA) |      |      |
| <strong>Non-expendable</strong>               |      |      |
| - Laboratory equipment (to ILMR) | 18,000 | 17,500 |
| <strong>Component Total</strong>              | 41,000 | 42,500 |</p>
<table>
<thead>
<tr>
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<th>1986</th>
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</thead>
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<tr>
<td>6. RENTAL AND MAINTENANCE OF</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PREMISES D/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Component Total</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7. OPERATION AND MAINTENANCE OF</td>
<td></td>
<td></td>
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<tr>
<td>EQUIPMENT E/</td>
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</tr>
<tr>
<td>- IAEA</td>
<td>1,800</td>
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<tr>
<td>Component Total</td>
<td>1,800</td>
<td>2,000</td>
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<tr>
<td>8. REPORTING COSTS F/</td>
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<td>1,300</td>
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<td>Component Total</td>
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<td>1,500</td>
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<tr>
<td>9. SUNDRY G/</td>
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<td></td>
</tr>
<tr>
<td>- IAEA</td>
<td>1,300</td>
<td>1,500</td>
</tr>
<tr>
<td>Component Total</td>
<td>1,300</td>
<td>1,500</td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td>855,000</td>
<td>997,500</td>
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</table>

C/ Equipment committed through Agreements included in Section 3 (Sub-contracts).
D/ No direct costs to MED POL.
E/ This item covers only the cost of operation and maintenance of equipment used by ILMR for common maintenance service.
F/ Costs of translation and printing of UNEP documents related to MED POL covered through Chapter I (Co-ordination) of MAP budget.
G/ Cost of sundry items related to MED POL incurred by UNEP covered through Chapter I (Co-ordination) of MAP budget.
### (SECTION I)
### CHAPTER 4 - MDR POL - RESEARCH

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<thead>
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<tr>
<td>A</td>
<td>35,000</td>
<td>36,000</td>
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<tr>
<td>B</td>
<td>16,000</td>
<td>18,000</td>
</tr>
<tr>
<td>C</td>
<td>16,000</td>
<td>18,000</td>
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<tr>
<td>D</td>
<td>25,000</td>
<td>36,000</td>
</tr>
<tr>
<td>E</td>
<td>16,000</td>
<td>18,000</td>
</tr>
<tr>
<td>F</td>
<td>20,000</td>
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</tr>
<tr>
<td>G</td>
<td>20,000</td>
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</tr>
<tr>
<td>H</td>
<td>25,000</td>
<td>26,000</td>
</tr>
<tr>
<td>I</td>
<td>12,000</td>
<td>20,000</td>
</tr>
<tr>
<td>J</td>
<td>14,000</td>
<td>12,000</td>
</tr>
<tr>
<td>K</td>
<td>25,000</td>
<td>30,000</td>
</tr>
<tr>
<td>L</td>
<td>25,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Sub-total</td>
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<td>296,000</td>
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<tr>
<td>A</td>
<td>12,000</td>
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</tr>
<tr>
<td>D</td>
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<td>12,500</td>
</tr>
<tr>
<td>H</td>
<td>12,000</td>
<td>-</td>
</tr>
<tr>
<td>L (two meetings)</td>
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**GRAND TOTAL**

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<tr>
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<td>285,000</td>
<td>332,500</td>
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Parameters agreed at 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 Coastal States on the Action Plan (Cannes, 2-7 March 1981) (UNEP/IG.23/11, paragraphs 13, 17, 18, 19, 20 and 24)

13. Pollutants to be monitored [for sources of pollution] include:
   (a) Pollutants listed in annexes I and II to the Land-based Sources Protocol;
   (b) Pollutants listed in annexes I and II to the Dumping Protocol;
   (c) Pollutants referred to in article 8 and article 9 of the Dumping Protocol;
   (d) Pollutants referred to in article 8 of the Emergency Protocol;
   (e) Substances which may contribute significantly to the over-all level (concentration) of pollutants in the sea.

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.

24. Parameters (indicators) recommended to be monitored in the reference areas are primarily those listed in paragraph 17, with the exception of micro-organisms.