United Nations Environment Programme

UNEP(OCA)/MED WG.1/3
15 April 1988

Original: ENGLISH

MEDITERRANEAN ACTION PLAN

First Meeting of the Scientific and Technical Committee

Athens, 23-27 May 1988

PROGRESS REPORT ON THE IMPLEMENTATION OF MED POL DURING 1987/1988

AND PROPOSED ACTIVITIES AND BUDGETARY REQUIREMENTS FOR 1989

In co-operation with:

FAO UNESCO WHO WMO IAEA IOC

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C O N T E N T S

INTRODUCTION

1. The present document was prepared by the secretariat, in close collaboration with the MED POL Co-operating Agencies (FAO, UNESCO, WHO, WMO, IAEA and IOC) for the First Meeting of the Scientific and Technical Committee. Section I of the document contains information on the implementation of the MED POL activities during the period January 1987 - March 1988 and, in section II, the activities approved by the Contracting Parties and the proposed budget requirements for 1989.

2. The Committee 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 advise the secretariat on activities and budget relative to the implementation of MED POL during 1989.

I. ACTIVITIES IMPLEMENTED IN THE PERIOD FROM JANUARY 1987 TO MARCH 1988

Monitoring

3. By the end of 1987 there were thirteen ongoing national monitoring programmes with agreements signed with ten countries (Algeria, Cyprus, Egypt, Israel, Lebanon, Libya, Malta, Morocco, Syria and Yugoslavia) while France, Monaco and Spain agreed to provide the secretariat with a description of the programme and the relevant data without signing a formal agreement. Italy transmitted the description of part of its MED POL programme (three regions) and a comprehensive programme is expected before the end of 1988. At the beginning of 1988, a formal agreement was signed for the first time by Greece which brought to fourteen the total number of ongoing programmes. Numerous visit of the Unit's staff were paid to Mediterranean countries, as needed, and efforts were made in order to finalize agreements with Tunisia and Turkey. The status of the National Monitoring programmes is summarized in annex I (a). Annex I (b) shows the location of the MED POL coastal monitoring stations, as part of the National Monitoring Agreements. The national institutions and the scientists designated by their National Co-ordinators to participate in the MED POL monitoring programme are listed in annex II.

4. During 1987, the secretariat, directly or through the Co-operating Agencies, provided assistance either in cash or in equipment and material to the countries that had finalized the monitoring agreement for a total of US $ 321,207. The monitoring assistance was distributed as follows: Algeria: US $ 74,815; Cyprus: US $ 29,683; Egypt: US $ 51,500; Israel: US $ 48,000; Lebanon: US $ 15,000; Libya: US $ 9,383; Malta: US $ 23,000; Morocco: US $ 13,500; Syria: US $ 100; Yugoslavia: US $ 56,226. It is worth noting that, in some cases, equipment was only ordered and funds committed, which may bring minor changes in the figures when final invoices are paid.

5. Annex I also shows the countries that submitted monitoring data. It is worth noting that during 1987, some data were received from Turkey and Tunisia but not in an acceptable format. In addition, the laboratories that produced the data did not participate in the MED POL intercalibration exercise. Italy and France sent a summary of the microbiological quality of their beaches

relative to the year 1986, according to EEC standards, and the Italian Region Emilia Romagna transmitted 1987 chemical and bacteriological data relative to the Adriatic Sea. Still very few countries reported data on sources of pollution and reference areas, while the bulk of the data received referred to coastal waters.

6. Following the recommendation of the Fourth Ordinary Meeting of the Contracting Parties (Genoa, 9-13 September 1985) to initiate a pilot project on studying air pollutant deposition into the Mediterranean region and pollutant concentrations in air, the corresponding studies were implemented in several countries (Algeria, France, Israel, Italy, Spain and Yugoslavia), in addition to research activities carried out under activity 'L' (see para 57). Six more countries expressed willingness to participate in the pilot project (Cyprus, Greece, Libya, Morocco, Tunisia and Turkey) but, due to various reasons were unable to implement the above studies.

7. Monitoring of precipitation chemistry (pH and major ions) and concentrations of suspended particles in air is being carried out in the region at twenty-one WMO Background Air Pollution Monitoring Network (BAPMoN) stations and at thirteen more stations co-ordinated by the UN Economic Commission for Europe (ECE) within the Co-operative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollution in Europe (EMEP). It would be desirable that all these stations would also act as airborne pollution monitoring stations within MED POL.

8. During 1987-1988 two precipitation collectors were provided to two Institutes in France and Yugoslavia officially designated to participate in the pilot project.

9. A Workshop on Airborne Pollution of the Mediterranean Sea was held in Belgrade, Yugoslavia from 10 to 13 November 1987 to consider results of research and monitoring activities relevant to the pilot project, and to elaborate detailed monitoring programme proposals and recommendations (see paras 104-106, part II). The report of the Workshop is submitted as document UNEP(OCA)/MED WG.1/Inf.3 and the Proceedings will be published in the MAP Technical Reports Series.

10. As a follow-up to the recommendations of the Fifth Ordinary Meeting of the Contracting Parties (Athens, 7-11 September 1987) progress was made in the implementation of the pilot monitoring exercises as described in the paragraphs here below.

Pilot monitoring of organotin compounds

11. Following the recommendations of the FAO/UNEP/WHO/IAEA ad hoc expert group on organotin compounds which met in Athens from 5-7 October 1987 (UNEP(OCA)/MED WG.1/Inf.4), three laboratories were selected to participate in the pilot survey for organotin compounds in the marine environment. The main criteria for selection were geographical coverage and known analytical competence.

12. The survey will take place in the coastal areas of Southern France, Southern Turkey and the Southern Tyrrhenian Sea (Italy) and the sampling locations will include "hot spots" (near marinas) and reference areas. It will concentrate on tributyltin (TBT) in seawater but efforts will be made to analyse also other compounds such as triphenyltin (TPT) and their derivatives and to include other matrices apart from seawater.

13. The principal investigators of the organotin survey will meet in Monaco (18-20 April 1988) to test and intercalibrate their methodology. Another small meeting is planned to take place at the end of the exercise (Erdemli, Turkey, 7-9 November 1988) to discuss and evaluate the results.

Pilot monitoring of organophosphorus compounds

14. A FAO/UNEP/WHO/IAEA ad hoc expert meeting on organophosphorus compounds was held in Athens (18-20 November 1987) where the pilot monitoring exercise was also discussed (UNEP(OCA)/MED WG.1/Inf.5). It was decided that the survey should include the areas near the mouths of the big Mediterranean rivers of Po (Italy), Ebro (Spain), Rhône (France) and the Nile (Egypt). Reference areas are also included. The meeting decided that priority should be given to six organophosphorus compounds. These are four pesticides (parathion, methylparathion, fenithrothion and malathion) and two non-pesticides (tributyl phosphate and tris-2-chloroethyl phosphate). Analyses will be performed on water, sediment and biological samples.

15. The principal investigators of the organophosphorus survey will meet in Monaco (13-15 April 1988) to test and intercalibrate their methodology. Another small meeting is planned at the end of the exercise (Barcelona, 21-23 November 1988) to discuss and evaluate the results.

Pilot monitoring of persistent synthetic materials

16. The IOC/FAO/UNEP ad hoc expert consultation (Athens, 14-16 October 1987) drew up a plan with sampling guidelines for beaches and pelagic areas, and with identification of possible areas to be sampled (UNEP(OCA)/MED WG.1/Inf.6). Contacts have been established with National Focal Points and responses were received from 5 countries.

Land-based Sources Protocol

17. A revised assessment on the state of microbial pollution of shellfish waters in the Mediterranean was completed and, following recommendation by the Fifth meeting of the WGSTC for MED POL in April 1987, the proposed measures, including interim environmental quality criteria for shellfish waters, were adopted by the Contracting Parties at their Fifth Ordinary Meeting (Athens, 7-11 September 1987).

18. A number of activities regarding the implementation of the LBS protocol were further rationalised following the recommendations of a Consultation on health-related aspects of marine pollution in the Mediterranean convened by WHO in Copenhagen from 29 June to 3 July 1987. Activities in connection with submarine outfall structures were integrated. The study on monitoring of the efficiency of selected outfall structures was taken over from PAP/RAC, and is now continuing within the framework of MED POL with the active participation of laboratories in Egypt, Greece, Italy and Spain. Arrangements for the participation of laboratories in France and Yugoslavia are in progress. This study is being linked with a survey on existing and planned structures in the Mediterranean, together with pre-treatment problems being encountered.

19. Questionnaire forms covering liquid domestic discharges and mercury, cadmium, petroleum hydrocarbons and organochlorines as industrial pollutants were prepared, and reviewed by the WHO/UNEP Consultation on land-based pollution monitoring in the Mediterranean (Split, 1-5 December 1987). Following revision by this meeting, the modified forms were submitted to WHO, Copenhague for technical setting prior to submission to National Co-ordinators for MED POL.

20. Arrangements commenced for a comprehensive survey of effluents requiring separate treatment. This survey will deal with annex I substances, and the final guidelines will form the necessary complement to the 1982 WHO/UNEP publication "Waste discharge into the marine environment".

21. A substantial amount of material was gathered on recent national legislation on the prevention and control of marine pollution from land-based sources, and the work of collation commenced early in 1988.

22. Technical delays prevented the completion of the revised version of the guidelines for authorisations for discharge of liquid wastes into the Mediterranean Sea. This document is now expected to be completed in its final draft form during the second half of 1988.

23. Other activities in connection with the LBS protocol are reported on under the Chapter Environmental quality criteria.

Research and Study Topics

24. As in the past, and according to the agreed procedures, the research proposals received by the secretariat for 1987 were distributed to the Co-operating Agencies for analysis, according to the subject. As a result, 109 projects, including extensions, were ongoing during 1987. The total financial contribution towards their implementation amounted at US $ 321,100. At the same time, during 1987, 35 projects were completed.

25. The Fifth Working Group for Scientific and Technical Co-operation had confirmed the deadline for submission of 1988 research proposals at 15 September 1987. As a result, in June 1987 the secretariat reminded the MED POL National Co-ordinators of the submission procedures and the proposals received were distributed to the Co-operating Agencies for analysis.

26. A full list of all the research projects including the 1988 proposals still under negotiation, ongoing and completed projects is included in annex III.

Activity A (Development and testing of sampling and analytical techniques for monitoring of marine pollutants)

Projects completed in 1987	- 7
Projects ongoing on 31.12.1987	- 11
Total 1987 contribution	- US$ 29,750

27. This activity continued to be used for the development of projects on testing of sampling and analytical techniques related to the implementation of the monitoring programme.

28. Microbiological projects continued to be linked, wherever possible, to revision of existing reference methods or development of new ones. Apart from bacteria in seawater, attention is now being increasingly devoted to pathogenic fungi in sand on bathing beaches. Of the 5 ongoing microbiological projects, 2 deal with this subject matter, the other 3 with bacterial indicators.

29. One project on chlorinated hydrocarbons was completed in 1987 and another one (on organophosphorus compounds) was extended for an additional year. In 1988 a new project on organotin compounds was accepted.

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

Projects completed in 1987	- 0
Projects ongoing on 31.12.1987	- 1
Total 1987 contribution	- US$ 3,500

30. The project under this activity, which commenced in 1986, deals 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 1987	- 2
Projects ongoing on 31.12.1987	- 5
Total 1987 contribution	- US$ 16,500

31. Completed projects dealt mainly with intercomparisons of techniques for monitoring shellfish waters, in relation to environmental quality criteria. Ongoing projects deal with studies relating to environmental quality criteria for coastal recreational waters, and development of models for the calculation of the environmental capacity of seawater in the Mediterranean.

32. A consultation meeting on health-related environmental quality criteria in the Mediterranean is scheduled to be convened jointly by WHO and UNEP in Ljubljana from 12 to 16 September 1988. The meeting, which will be mainly financed from WHO regular budget funds, will review technical problems of compliance with microbiological interim criteria so far adopted by the Contracting Parties, review the final report of the pilot phase of the project on methylmercury in Mediterranean populations and related health effects, formulate recommendations on risks to human health through the consumption of mercury contaminated seafood and proposed measures, and review requirements in connection with health-related criteria vis-a-vis annex I and annex II substances in the LBS protocol.

Activity D (Epidemiological studies related to Environmental Quality Criteria)

Projects completed in 1987	- 8
Projects ongoing on 31.12.1987	- 10
Total 1987 contribution	- US$ 27,250

33. Completed projects dealt with pathogen/indicator relationships, viruses in seawater, toxic effects of jellyfish, and methylmercury. Ongoing projects cover microbiological/epidemiological studies on the correlation between coastal water quality and health effects, health hazards from methylmercury, relationships between bacterial and chemical pollution of seawater, marine biotoxins, neurotoxins in shellfish, and pathogenic micro-organisms in seawater.

34. The current three-country project on methylmercury in Mediterranean populations and related health hazards is expected to be completed in June/July 1988, and the results will be discussed by the Ljubljana meeting in September 1988 (vide Activity C above).

35. A consultation meeting on microbial pollution of Mediterranean marine coastal areas and associated health effects was jointly convened by WHO and UNEP in Athens from 22 to 26 September 1987 and was attended by 17 participants from 8 Mediterranean countries, as well as by representatives of WHO, FAO, IOC and UNEP. The report of the meeting is contained in document EUR/ICP/CEH 052(S) (UNEP(OCA)/MED WG.1/Inf.7).

36. One project on the methylmercury content in seafood was completed in 1987 while another one on the same subject was extended for a further year.

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

Projects completed in 1987	- 0
Projects ongoing on 31.12.1987	- 4
Total 1987 contribution	- US$ 15,000

37. Ongoing projects deal with the design of submarine outfall structures in the Mediterranean, studies on used lubricating oils in effluents, health-related environmental impact assessment in selected projects and developments, and coastal pollution by solid wastes. All projects are closely interlinked with the relative LBS activities.

Activity F (Research on oceanographic processes)

Projects completed in 1987	- 5
Projects ongoing on 31.12.1987	- 17
Total 1987 contribution	- US$ 36,000

38. Ongoing projects deal with physical processes effecting distribution, dispersion, water exchange and circulation, air-sea interaction, modelling of circulation, transport and sea-level variation. Compilation of review on existing knowledge and co-operation between participating research groups are ongoing.

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

Projects completed in 1987	- 6
Projects ongoing on 31.12.1987	- 26
Total 1987 contribution	- US$ 71,000

39. Six toxicity projects were completed in 1987 studying the various effects of heavy metals to marine organisms. Fourteen of the ongoing projects were extended for an additional year covering research areas such as:

(a) toxicity, persistence and bioaccumulation of chromium in a marine trophic chain;

(b) effects of cadmium and other heavy metals to various marine organisms:

(c) the use of sea-urchin gametes in toxicity testing;

(d) serum enzymes in fish as indicators of marine pollution;

(e) effect of organophosphorus pesticides to selected marine invertebrates.

40. In addition six new projects were accepted in 1987. Research areas covered are:

(a) toxicity of organotin coumpounds on Artemia;

(b) bioaccumulation of organotin compounds and thallium in marine organisms;

(c) metallothioneins as a potential indicator of metal pollution;

(d) effects of metal pollutants to various marine organisms.

41. Final reports on completed projects are published in the MAP Technical Reports Series No. 10.

42. For 1988, eight new projects have been submitted under this activity four of which have already been accepted and the rest are still being negotiated.

43. An inter-laboratory acute toxicity testing exercise with marine organisms has been initiated and its results will be discussed at the FAO/UNEP meeting on acute toxicity which is planned for September 1988 at Villefranche-sur-mer, France. The consultation meeting will also review three draft reference methods on acute toxicity prepared in the Regional Seas series of Reference Methods for Marine Pollution Studies. It is also expected to review the progress of research projects implemented within this activity and to formulate the framework for future research.

44. In the same activity, current projects in carcinogenicity/mutagenicity are in line with the recommendations of the WHO/UNEP expert meeting held in Athens in June 1986, and cover the development of short term tests for pollutant mutagenicity, the relationship between carcinogenic marine pollutants and human degenerative disease, and the effects of various environmental factors on the carcinogenicity and/or mutagenicity of marine pollutants.

45. A workshop on the impact of carcinogenic, mutagenic and teratogenic marine pollutants on human health and the environment was jointly convened by WHO and UNEP in Rome from 9 to 11 November 1987 in collaboration with the Department of Programming and Organisation of Public Health Services, University of Rome. It was attended by 54 participants from 4 Mediterranean and 5 non-Mediterranean countries (including top experts from the USA, UK, Canada and FRG) apart from representatives of WHO, FAO and UNEP. The workshop was mainly financed by the host institution. The summary report is contained in document EUR/ICP/CEH 055(S). The complete proceedings, containing the text of scientific papers presented, are in print.

46. Liaison with the International Agency for Research on Cancer (IARC) in Lyon continued and considerable assistance, mainly in documentation, was received.

Activity H (Eutrophication and concomitant plankton blooms)

Projects completed in 1987	- 0
Projects ongoing on 31.12.1987	- 3
Total 1987 contribution	- US$ 9,000

47. Two projects were ongoing in 1987 both of which were extended; they study irregular plankton blooms and the toxic dinoflagellates. One new project was also started in 1987.

48. In 1988, five new projects have been submitted four of which have already been accepted.

49. The UNESCO/FAO/UNEP Scientific Workshop on eutrophication in the Mediterranean sea was held in Bologna, Italy from 2-6 March 1987. The workshop prepared a set of guidelines for the monitoring, assessment and control of eutrophication in the Mediterranean sea and recommended a number of objectives for future research on the subject. The Report and Proceedings of the Workshop are published as MAP Technical Reports Series No. 21.

Activity I (Pollution-induced ecosystems modifications)

Projects completed in 1987	- 2
Projects ongoing on 31.12.1987	- 5
Total 1987 contribution	- US$ 15,500

50. Two projects were completed in 1987 under this activity; one has been extended and four have been initiated. Final reports on completed projects are published in the MAP Technical Reports Series No. 22.

51. In 1988 two new projects have been accepted. Projects study the effects of pollution on benthic and planktonic communitties in various Mediterranean coastal areas.

52. One of the conclusions of the FAO/UNEP meeting on the Effects of Pollution on Marine Ecosystems (Blanes, Spain, 7-11 October 1985) was that there is an urgent need for training in methods of data analysis. As a follow-up to the above, a training workshop on the statistical treatment and interpretation of marine community data will be organized in Piran, Yugoslavia from 14 to 24 June 1988. About 20 Mediterranean scientists are expected to participate.

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

Projects completed in 1987	- 0
Projects ongoing on 31.12.1987	- 1
Total 1987 contribution	- US$ 3,000

53. One project was ongoing in 1987 studying the effects of thermal pollution on benthic communities; it was extended for a further year.

Activity K (Biogeochemical cycles of specific pollutants)

Projects completed in 1987	- 1
Projects ongoing on 31.12.1987	- 15
Total 1987 contribution	- US$ 41,500

54. Ongoing projects on survival of pathogens cover the effects of various environmental conditions prevailing in the Mediterranean (including field studies on discharges from sewage outfalls), inactivation of viruses in the marine environment, and adaptation of pathogenic enterobacteria to seawater.

55. In other aspects of the activity, one project was completed in 1987 while seven more were extended for an additional year and four new ones were initiated. They cover topics such as:

(a) fate of organotin compounds;

(b) transformation of inorganic and organic forms of mercury;

(c) various aspects of the biogeochemical cycle of mercury, cadmium and radionuclides.

56. Two new projects have been accepted for 1988 covering the cycle of organophosphorus pesticides and the transfer of cadmium, copper, lead and zinc through macroplankton.

Activity L (Pollutant-transfer processes)

Projects completed in 1987	- 4
Projects ongoing on 31.12.1987	- 26
Total 1987 contribution	- US$ 53,100 (including 9,000 from the 1986 budget transferred to 1987)

57. During 1987 there were ten ongoing projects from six countries related to studying deposition and atmospheric concentrations and modelling transport of pollutants. Some results of the research projects were reported at a Workshop on Airborne Pollution of the Mediterranean Sea held in Belgrade in November 1987 (see para 9). Eleven projects are being continued or initiated in 1988.

58. In addition, other ongoing projects dealt with the evaluation of transport of contaminants through straits and the processes determining transfer and transformation of contaminants in various sectors of the marine environment, including modelling.

Jellyfish Programme

Projects completed in 1987 - 27
Total 1987 contribution - US$ 0

59. A Workshop was organized by CIMAM from 2 to 5 September 1987 in Trieste on the subject of jellyfish. In this connexion, the secretariat supported the participation of the principal investigators of the MED POL jellyfish programme and final reports were presented and discussed. The report of the meeting, including a scientific review of results and hypotheses which came as the main results of the two-year programme as well as the final reports of the principal investigators, will be published in 1988 in the MAP Technical Reports Series.

60. The report on the implications on Climatic Changes in the Mediterranean is being prepared by a group of experts, under the co-ordination of the Mediterranean Co-ordinating Unit. The report covers the Mediterranean as a whole and, in addition, six case studies (deltas of Ebro, Rhone, Po and Nile, Thermaikos Gulf and Lake Ichkuel/Lake Bizerte) are expected to be finalized by the end of 1988. The report is one of the six regional reports being prepared by UNEP's OCA/PAC.

61. A review of the state of the Mediterranean Marine Environment is being prepared by the group of experts under the co-ordination of the Mediterranean Co-ordinating Unit. The review, as one of 12 regional reviews, will serve as background document for the preparation of the GESAMP's "Health of the Oceans" report and will be finalized by May 1988.

62. As a response to a request raised during the Fifth Ordinary Meeting of the Contracting Parties (Athens, 7-11 September 1987, UNEP/IG.74/5, para 107), the secretariat started collecting information on mortalities of sea urchins around Mediterranean coasts as well as names of experts for exchange of experience and data.

Environmental Quality Criteria

63. During 1987 important steps were made on this subject. In particular, Environmental Quality Criteria were adopted by the Contracting Parties for mercury and mercury compounds and for shellfish and shellfish-growing waters at their Fifth Ordinary Meeting of the Contracting Parties (UNEP/IG.74/5).

64. Furthermore, during 1987 the secretariat, in close collaboration with the Co-operating Agencies, continued to work on the preparation of additional environmental quality criteria, as part of the workplan for the implementation of the Land-based Sources Protocol.

65. In particular, the following assessments have been prepared and are submitted to the Scientific and Technical Committee for analysis: assessment of the state of pollution in the Mediterranean Sea by used lubricating oils and proposed measures (UNEP(OCA)/MED WG.1/6); assessment of organotin compounds as marine pollutants and proposed measures for the Mediterranean (UNEP(OCA)/MED WG.1/7). The assessments of the state of pollution in the Mediterranean Sea by cadmium and cadmium compounds, by organophosphorus compounds and by organohalogen compounds will be completed in 1988 and will be submitted to the second Meeting of the Scientific and Technical Committee in 1989.

66. As a preparatory step in the formulation of the assessment of the state of pollution of the Mediterranean Sea by pathogenic microorganisms, a preliminary list of the more important pathogens was produced by the September 1987 Athens consultation meeting. As a second step, statistical information on the situation has been sought by WHO from Ministries of Health in the various Mediterranean countries.

67. In connexion with the preparation for the assessment of the state of pollution of the Mediterranean sea by carcinogenic/mutagenic substances, a preliminary list of potentially importanc substances has been compiled bu IARC. A small meeting of experts, scheduled to be convened jointly by WHO and UNEP in Athens from 23 to 25 June 1988, will formulate the outline content of the assessment document, review work produced so far in the relevant MED POL research activity, and finalize arrangements for the pilot monitoring study of selected areas to be undertaken in 1989.

68. Furthermore, work is being carried out towards the finalization of the preparation of the assessments of pollution by cadmium and cadmium compounds, organophosphorus compounds, organohalogen compounds and persistent synthetic materials with a view to submit them with proposed common measures to the Second Meeting of the Scientific and Technical Committee.

69. Assistance was and is being offered by the secretariat to all the countries who intend to apply adopted or proposed environmental quality criteria.

Reference Methods

70. Under the overall co-ordination of the Ocean and Coastal Areas Programme Activity Centre (OCA/PAC) of UNEP, and in close collaboration with the Co-operating Agencies, work continued on the preparation and updating of reference methods to be used in the monitoring activities.

71. In particular, a three-country study on the comparability of faecal coliform and E. coli determinations (Recommendation K.3.h of the Contracting Parties at their Fifth Ordinary Meeting) commenced in early 1988. The study is being undertaken by institutes in France, Italy and Spain, and the results are expected to produce a more updated and expanded version of the reference method on determination of faecal coliforms in seawater.

72. A six-country study on comparability of culture media for faecal streptococci commenced in early 1988 in Egypt, Greece, Italy, Malta, Spain and Yugoslavia, as a result of which the reference method on determination of faecal streptococci in seawater is expected to be revised.

73. Work commenced in early 1988 on draft guidelines for monitoring land-based sources of pollution in the Mediterranean sea in accordance with the outlines contents agreed upon during the December 1987 Split Consultation Meeting.

74. In addition, during 1987, the following draft methods were prepared: UNEP/IAEA/WMO Guidelines for the determination of selected trace metals in aerosols and in wet precipitation (No. 42); UNEP/FAO/IAEA Test of the acute lethal toxicity of pollutants to marine fish and invertebrates (No. 43);

UNEP/FAO/IAEA Estimation of the toxicity of pollutants to marine phyto-planktonic and zooplanktonic organisms (No. 44); UNEP/FAO/IAEA Comparative toxicity test of water-soluble fractions of oils and oil dispersants to marine organisms (No. 45); UNEP/WHO/IAEA Determination of methylmercury, total mercury and total selenium in human hair (No. 46).

Data collection, analysis and dissemination

75. All the MED POL - PHASE II data have been or are being entered into the MED POL Data Bank. The estimated total number of raw data available is about 23,000 (halogenated hydrocarbons, petroleum hydrocarbons, heavy metals and microbial pollution). The data are being entered and a complete analysis will be prepared for the meeting of principal investigators on monitoring (December 1988).

76. Great efforts were made by all Co-operating Agencies in order to have data reporting forms available for all the parameters and matrices to be monitored in the MED POL programme. In order to avoid duplication of work, whenever forms had been prepared and used in other similar regional of global programmes by other organizations (OSLO/PARIS, MARPOLMON, ICES, etc.), those forms were taken up and checked as to their applicability in the MED POL programme. While the existing forms for microbial pollution in seawater, heavy metals and halogenated hydrocarbons in organisms (annex IV a) were widely distributed in 1983 and are in use since then, additional forms for tar on seashore, oil slicks, tar balls, dissolved/dispersed hydrocarbons and heavy metals and halogenated hydrocarbons in sediments are now ready to be circulated and used for MED POL (annex IV b). Every effort will be made to have by the end of 1988 forms for all the parameters and matrices included in the MED POL monitoring programme.

77. The secretariat is also working on the processing of the computerized MED POL data base (monitoring agreements and raw data). As a result, before the end of 1988, queries, reporting, mapping and statistical analysis will be available on all the existing data. Some of the work has already been completed and on-map presentation of monitoring agreements is already available.

78. As to the dissemination of existing data and results, extensive work has been carried out in order to publish a number of issues of the MAP Technical Reports Series containing the available results of MED POL - PHASE II. The list of the issues published as at March 1988 is attached as annex V.

Intercalibration

79. As in the past, during 1987 an intercalibration programme was carried out by IAEA to ensure quality and reliability of analytical data received through the monitoring activities.

80. In particular, during 1987, 3 intercalibration exercises were concluded:

- MA(F)MED-86/OC (Fish) 17 participants, chlorinated hydrocarbons
- MA(S)MED-86/OC (Shrimp) 17 participants, chlorinated hydrocarbons
- MA(F)MED-86/TM (Fish) 32 participants, trace metals

81. Three reports were issued on the subject:

- Report No. 33 - Preliminary Report on the intercalibration exercise of organochlorine compound measurements on shrimp homogenate MA-A-3/OC and MA(S)-MED-86/OC and fish homogenate MA-B-3/OC and MA(F)-MED-86/OC. IAEA, Monaco, May 1987;

- Report No. 34 - Trace element measurements on shrimp homogenate. Results of the worldwide intercomparison run MA-A-3/TM and of the MED POL exercise MA(S)MED-86/TM. IAEA, Monaco, June 1987;

- Report No. 35 - Results of MED POL II exercise for the intercomparison of trace element measurements on fish tissue homogenate MA(F)-MED-86/TM. IAEA, Monaco, April 1988.

82. From these reports it is possible to draw the following general conclusions:

- whilst there has only been a slight improvement of data quality, there is a significant increase in the number of participants in each exercise;

- data quality is particularly poor for the analysis of organic contaminants;

- for trace metals, results for mercury are now generally very satisfactory but considerable improvement is still needed for cadmium, chromium and lead.

83. It is apparent that a more dynamic and interactive approach to quality assurance is required in order to make a sustainable improvement in data quality. Such an approach is now being tested on a pilot scale and is described in para 89. Intercalibration exercises, however, will continue to give important reference information on each laboratory's performance and reflect the success or failure of the new approach.

84. The use of reference materials is being encouraged in the present programme. These are available from the Monaco laboratory who will now hold a limited stock of certificated reference materials from various worldwide producers, for regional distribution in the MED POL programme..

85. Two new intercalibration samples/reference materials are already being developed for the 1988 programme. These are:

- Mediterranean pelagic sediment sample;

- Mediterranean tuna homogenate.

86. The first of these will be distributed during April/May 1988 and the second, in September/October. A third sample - a "hot spot" sediment will be prepared in late 1988.

87. Preparations were also completed for the holding of the training course and intercalibration exercise on microbiological methodology in Athens from 9 to 14 May. This course will be conducted in English with 16-18 participants.

88. In order to make full use of the results of the various intercalibration exericses, contacts were continued with laboratories where the results had shown methodological problems (sampling and/or analysis) and, whenever needed, the training component of MED POL was fully used.

Data Quality Assurance Programme

89. As a result of the evaluation of the MED POL programme, a data quality assurance programme was prepared during 1987 and its implementation initiated in 1988. The programme is focussed on three major activity areas (organochlorine pesticides, trace metals contaminants and petroleum hydrocarbons) and it is being implemented in Egypt, Algeria and Morocco. Preliminary visits to set the implementation procedures were successfully accomplished in the three above-mentioned countries and the programme is expected to be fully operational by the end of 1988. Full details on the programme (rationale and objectives) are given in annex VI.

Maintenance

90. 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 1987 the ILMR maintenance engineer continued to be in charge of the maintenance of WANG computers provided to the SPA/RAC in Tunis, ROCC in Malta and PAP/RAC in Split.

Training and Fellowships

91. Assistance was directly provided to MED POL participants in the form of individual and group training, visit of experts to less experienced laboratories, support for participation at MED POL meetings (workshops and intercalibration exercises) and travel grants for attendance at meetings related to the MED POL programme. In addition, a training cruise is being organized in May, by using a Moroccan research vessel put at the disposal of MED POL by the ISTPM of Casablanca and the Moroccan Government and preparations were initiated for the organization and the sponsoring of the IX ICSEM/IOC/UNEP Workshop on Marine Pollution of the Mediterranean Sea (Athens, 17-19 October 1988). The list of those who benefited from MAP support is given in annex VIII.

Co-ordination

92. 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).

93. 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).

94. 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.

95. The active participation of 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 1987 and 1988, in order to ensure harmonious co-operation in the implementation of MED POL:

- 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.

- XXI Meeting of IAAC (Athens, 13-15 January 1988): It reviewed the activities carried out in 1987 and reviewed procedures and priorities for the implementation of 1988 activities.

Budget for 1987

96. The MED POL budget for 1987, as approved by the Fourth Ordinary Meeting of the Contracting Parties and the actual expenditures, appear in annex IX.

II. ACTIVITIES PROPOSED FOR 1989

97. During their Fifth Ordinary Meeting (Athens, 7-11 September 1987), the Contracting Parties approved the programme for the 1988-1989 MED POL activities (UNEP/IG.74/5, section II; H, I, J, K). In addition, the ceiling of the over-all budget for the whole Mediterranean Action Plan was established but an agreement for the individual budgets for the various components of the Plan was not reached. The paragraphs here below therefore contain a description of the approved MED POL activities for 1989 and the relative budget. In view of the over-all MAP budget adopted, the secretariat considered appropriate to propose the individual 1989 budgets for MED POL, PAP, SPA and ROCC with "zero growth".

Monitoring and supporting activities

98. With the aim of completing the geographical coverage of the MED POL monitoring activities, the secretariat will continue to keep close contacts with MED POL National Co-ordinators, country visits will be paid by the Unit's staff as needed, and the needs for the full participation of all countries in the programme will be assessed. As in the past, the direct assistance funds

will be used to provide equipment and material according to needs and priorities. Reference Methods will be produced in relation with the implementation and the needs of the Land-based Sources Protocol.

99. The maintenance of the instruments and the intercalibration programmes will be continued in parallel with the training component of MED POL which will be used whenever needs for improving the quality of the sampling and the analytical techniques will arise. In particular, in 1989 the two intercalibration exercises initiated in 1988 will be concluded: pelagic mediterranean sediment (trace metals and organochlorine pesticides); homogenised mediterranean tuna (trace metals, pesticides).

100. An additional sediment sample will be distributed and a preliminary evaluation of the data: "hot-spot" sediment: (trace metals, organochlorine pesticides) is expected.

101. Furthermore, a marine bivalve sample for trace metals, pesticides, petroleum hydrocarbons and organomercury and organotin will be prepared and distributed.

102. The Data Quality Assurance Programme related to chemical parameters will continue to be implemented by expanding its coverage to additional countries. In addition, in view of the upgrading of existing microbiological laboratories and the establishment of new ones in several Mediterranean countries, as a result of increased attention being devoted to the regular monitoring of coastal recreational waters, it is proposed to carry out a data quality assurance programme in this field through (a) partial subsidy of national short courses, and (b) expert visits to individual laboratories.

103. The following activities are therefore planned to be carried out in 1989:

- intercalibration and training course on determination of microbiological pollution (french-speaking countries);
- intercalibration and training course on determination of organic mercury;
- training course on analysis of physical oceanographic data and time-series;
- purchase of standards and reference materials to be distributed to laboratories;
- joint exercises on monitoring and intercomparison of results including sampling and analysis of split samples, expert assistance to laboratories for sampling, analysis, presentation and evaluation of results and improved arrangement for dissemination of relevant scientific material.

Monitoring of transport of pollution through the atmosphere

104. The Workshop on Airborne Pollution of the Mediterranean Sea held in Belgrade, Yugoslavia in November 1987 (see para 9) considered the preliminary results of the pilot project and the relevant research activities, and recognized the importance of atmospheric transport of contaminants from diverse land-based sources to the Mediterranean region. The Workshop also

confirmed that such contamination might be of concern for the quality of coastal and open Mediterranean waters, marine life and human life on coastal areas (UNEP(OCA)/MED WG.1/Inf.3 - Report of the Workshop). The common opinion was that over the last years research and monitoring activities on airborne pollution had essentially increased in the region and were steadily developing. The Workshop agreed that a monitoring and modelling programme on pollutant transport to the Mediterranean Sea through the atmosphere should start as soon as possible.

105. The major goals of this programme, as determined by the Workshop, are the following:

- to evaluate the importance of the atmospheric transport and deposition of land-based contaminants to coastal and open Mediterranean waters;
- to assess the airborne contamination level of trace substances which can affect the quality of human life on coastal areas;
- to identify sources and source regions for these atmospheric contaminants;
- to develop predictive models of the airborne contamination of the Mediterranean environment to provide the basis for future action.

106. It is therefore proposed that this type of monitoring is to be added to the regular monitoring in the National Monitoring Agreements of MED POL. A complete description of the proposed monitoring and modelling programme is given in annex X to this document and in the report of the Workshop (UNEP(OCA)/MED WG.1/Inf. 3).

Land-based Sources Protocol and Environmental Quality Criteria

107. In conformity with the calendar of activities approved by the Contracting Parties, the following activities are proposed for 1989:

- continuation of the survey of land-based sources and amounts of pollutants reaching the Mediterranean Sea, which will include a survey of the situation currently existing in the Mediterranean with regard to products, installations and other processes within the region actually or potentially causing significant pollution of the marine environment;
- evaluation of the pilot project on in situ investigations on selected submarine outfalls to determine their technical efficiency and cost-effectiveness, and commencement of preparation of draft guidelines based on other results obtained from 1987-1988 activities (legislation survey, review of pre-treatment problems);
- carrying out of the pilot project on monitoring of carcinogenic/mutagenic substances in selected areas, and commencement of the assessment of the state of pollution of the Mediterranean Sea by such substances;
- carrying out of the assessment of the present state of pollution of the Mediterranean Sea by pathogenic organisms and proposed measures;

- carrying out of the assessment of the present state of pollution of the Mediterranean Sea by radioactive substances and proposed measures;

- evaluation of environmental quality criteria already adopted by the Contracting parties, and preparation for confirmation or otherwise of current interim criteria.

Data processing, management and utilization

108. The secretariat, through its Data Processing Unit, aims to carry out during 1989 the following activities:

- complete the MED POL pollution information system, covering up-to-date reported data;

- inclusion of new analysis and presentation techniques for the evaluation of MED POL pollution and monitoring agreements data;

- further improvements related to the processing of the MED POL pollution and monitoring agreements information data, as continuation from 1988; and

- on-line communication with countries.

Research and Study Topics

109. Activity A. This activity will be used for the development of sampling and analytical techniques for priority parameters as defined by the Land-based Sources Protocol. Emphasis will be given to techniques and parameters not yet included in the Reference Methods.

110. The objectives of the microbiological component of this activity will remain the same, emphasis being given to the updating of currently-existing reference methods on the basis of new data, problems encountered by laboratories, and ad hoc studies required.

111. A consultation meeting on the determination of microbiological pollution in coastal marine waters in the Mediterranean will be held in 1989 (activities A/D/K). The meeting will review all the problems associated with microbiological methodology, including updating of the current reference methods on the basis of country and intercountry studies already completed, explore the possibilities of interlaboratory collaboration in selected areas (such as detection of viruses), review the situation with regard to pathogen survival and adaptation vis-a-vis practical requirements for prevention and control measures, and make appropriate recommendations;

112. Activity B. The objectives of this activity will continue to be confined to ad hoc research and/or study needed in connection with the development of reporting formats required for the Land-based Sources, Dumping and Emergency Protocols.

113. Activity C. The objectives of this activity will remain geared to studies related to new environmental quality criteria.

114. Activity D. This activity will have three main components: (a) continuation of the current work on epidemiological studies correlating coastal recreational water quality with health effects, with the emphasis shifting towards the solutions to specific country problems, (b) extension of the first phase of the methylmercury project studies to other Mediterranean countries where prima facie evidence of problems is indicated, and (c) commencement of similar studies on heavy metals other than mercury combined, wherever possible, with the mercury studies in order to avoid duplication.

115. Activity E. This activity will remain closely connected to related activities being carried out within the framework of the progressive implementation of Article 7 of the LBS protocol, and will aim at providing any local data required to support the more general review-type studies.

116. A consultation meeting on programmes and measures in connection with the progressive implementation of Article 7 of the LBS protocol (Activity E) is planned for 1989. The meeting will review and evaluate all activities carried out and planned withing the framework of Research Activity E and the relevant LBS activities, provide a further input into the latter through national experience, and make appropriate recommendations regarding this component of the programme.

117. Under activity F, research projects of special relevance to the implementation of the Land-based Sources Protocol will be given priority. In particular those on exchanges between coastal and open-sea areas, fluxes of contaminants between surface and bottom layers, air-sea and land-sea interactions, circulation, exchanges through straits, and modelling. A training workshop on data and time-series analysis will be organized for MED POL participants, including preparation of software packages. Reports on implications of research results and on methodologies will be prepared.

118. Activity G. A big portion of the research on toxicity proposed by principal investigators often duplicates work already carried out elsewhere. For example, the lethal toxicity of common pollutants, such as some heavy metals and pesticides, to marine organisms is well documented. In addition, toxicological literature indicates that interspecific and intraspecific differences in susceptibility to pollutants is relatively small.

119. Future research in this field should therefore focus on substances listed in the annexes I and II of the LBS protocol for which available information is insufficient. A detailed future research plan as well as the methodological problems involved will be discussed at the consultation meeting on toxicity planned to take place in Villefranche-sur-Mer, France, from 5 to 9 September 1988.

120. The component of this activity dealing with carcinogenic/mutagenic substances will continue to be geared to the acquisition of essential data on effects of Mediterranean environmental factors on the carcinogenicity/ mutagenicity of marine pollutants, and to provide as much data as possible as an input into the relative assessment document.

121. Activity H. The UNESCO/FAO/UNEP Scientific Workshop on Eutrophication in the Mediterranean Sea (Bologna, Italy, 2-6 March 1987) (UNEP(OCA)/MED WG.1/Inf.8) indicated that it is necessary to generate scientific information for modelling and control policies by conducting specific research focussed on the following objectives:

a) factors controlling eutrophication processes;

b) the structure and function of eutrophic ecosystems and the relevant hydrodynamics, as the basis for the determination of their receiving capacities for eutrophicants;

c) classification of the stages and degrees of eutrophication on the basis of quantitative parameters;

d) investigation of the recovery processes in ecosystems that have been modified due to anoxia and mortalities induced by eutrophication;

e) further development of scientific methods as needed, particularly for the monitoring and ecological assessment programmes.

122. It was also recommended to develop and implement within the framework of MED POL - PHASE II, an internationally co-ordinated research project on anthropogenic eutrophication processes in the Mediterranean which should also include a few non-polluted reference areas.

123. The recommended research objectives will be taken into consideration when evaluating 1989 research proposals, while an effort will be made to establish the co-ordinated project if funds are made available.

124. Activity I. This activity is concerned with the effects of pollutants at the population level. Most of the research projects study the alterations in community structure especially benthic. The meeting on the Effects of Pollution on Marine Ecosystems (Blanes, Spain, 7-11 October 1985) recognized that a diversity of criteria are required for evaluating pollution effects. Regarding methods of data analysis, the meeting emphasized that no single method of analysis was adequate, and that ecological data could only be fully interpreted with the aid of a range of data analysis techniques. In this connexion, the IOC's Group of Experts on the Effects of Pollutants (GEEP) has undertaken to evaluate the different criteria used in studying pollution effects. In addition, a training workshop on the statistical treatment and interpretation of marine community data is organised for those scientists not acquainted with recent techniques (see para 52).

125. It is hoped that research proposals submitted for 1989 will have a scientifically sound basis and will take into consideration the results of GEEP and the experiences from the training workshop on the treatment of data.

126. Activity J. The biological effects of thermal discharges in the marine environment was the subject of a GESAMP Working Group which met in the years 1981-1983. The report of the Group was published in 1984 as GESAMP Reports and Studies No. 24. The Group concluded that overall effects of thermal discharges may become significant where larger heat discharges are proposed to areas of limited receiving capacity.

127. This research activity will receive low priority and proposals will be accepted only in special cases.

128. Activity K. The biogeochemical cycles of many compounds are still not very well defined. Priority will be therefore given to substances listed in annexes I and II of the LBS Protocol as well as in the calendar for the preparation of the "assessment" documents.

129. The microbiological component of this activity will have two main targets: continuation of acquisition of essential information on pathogen/indicator survival under Mediterranean conditions as an input into the eventual guidelines for submarine outfall structures, and studies on the adaptation of pathogenic organisms to the Mediterranean marine environment, including alterations in virulence.

130. Activity L. With regard to research activities in the field of pollutant-transfer processes at the air-sea interface and atmospheric transport and deposition of pollutants into the Mediterranean Sea, a number of research needs were discussed at the Belgrade Workshop (UNEP(OCA)MED WG.1/Inf.3) which will be given priority in the future. The problems which will be given priority include, inter alia, the following:

- influence of mass-particle size distribution on dry deposition;
- transfer of pollutants from the sea to the atmosphere;
- volcanic contribution to pollution loading of the Mediterranean Sea through the atmosphere;
- use of bioindicators (such as lichens) for assessing atmospheric pollution;
- role of ozone in air quality deterioration in shore areas;
- development of single-layer Lagrangean and 4-dimensional sophisticated Eulerian models to assess and predict airborne pollution of the Mediterranean environment;
- development of common methodologies for collecting information and data on emissions of major pollutants into the atmosphere.

131. Other objectives for Activity L include increasing understanding of processes and developing models facilitating the prediction of distributions of pollutants from land-based sources, over different time scales, and the changes in levels as function of inputs and conditions in the sea. In particular, the coastal zone is studied. The research also gives information required for elucidating biological conditions and their changes, and also facilitates predicting or evaluating long-term changes and their effects, e.g. climatic.

Budget proposed for 1989

132. The budget proposed for the development of the 1989 activities is presented in annex XI. It is worth noting that, on the basis of the approval of the 1988-1989 activity programme and of the decision by the Contracting Parties on the over-all ceiling for the 1989 budget for the MAP, the secretariat considered appropriate to propose the individual 1989 budgets for MED POL, PAP, SPA and ROCC with "zero growth".

Annex I

a) Status of implementation of National Monitoring Programmes (as at March 1988)

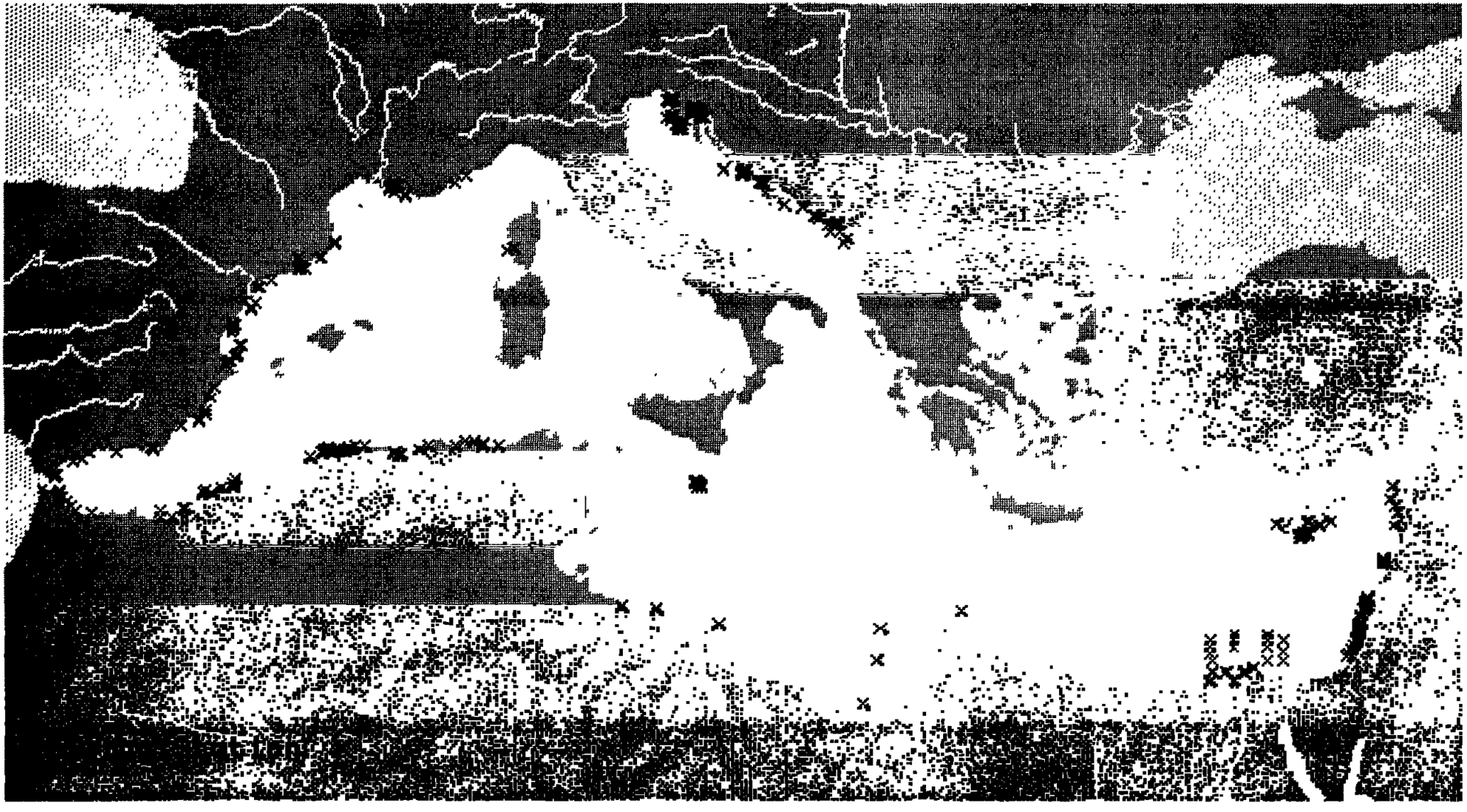
Country	Year of first National Monitoring Programme signed	Status of latest National Monitoring Programme	Data transmitted
Algeria	1985	1987 Programme sent for signature on 10/12/88	1985, 1986
Cyprus	1983	1987 Programme signed on 18/5/87	1983, 1984, 1985, 1986, 1987
Egypt	1986	1987 Programme sent for signature on 11/2/88	-
France	1986 1/	-	1983, 1984, 1986
Greece	1988	1988 Programme signed on 12/4/88	-
Israel	1983	1987 Programme signed on 10/5/87	1982, 1983, 1984 1985, 1986, 1987
Italy	-	-	1987
Lebanon	1983	1988 Programme sent for signature on 18/2/88	1984, 1985, 1986
Libya	1986	1986 Programme signed on 15/3/86	-
Malta	1983	1987 Programme sent for signature on 30/11/87	1982, 1983, 1984 1985, 1986, 1987
Monaco 2/	1986 1/	-	-
Morocco	1985	1987 Programme signed on December 1987	1983, 1984, 1985, 1986
Spain	1986 1/	-	1981, 1982, 1983, 1984, 1985
Syria	1986	1987 Programme signed on 19/10/87	-
Tunisia	-	-	-
Turkey	-	-	-
Yugoslavia	1983	1987 Programme signed on 28/10/87	1983, 1984, 1985, 1986

1/ Description of ongoing national monitoring programmes and relevant data were sent to the secretariat

2/ Included in French Monitoring Programme.

MED POL Monitoring of Pollution in the Mediterranean

Coastal Sampling Stations of National Monitoring Programmes



Annex II

Participants in MED POL - PHASE II monitoring activities
(January 1987 - March 1988)

ALGERIA

Agence nationale pour la protection de l'environnement (ANPE) Antenne d'Oran 9 Bd. du 5 Juillet Oran	M. N. Sini
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Laboratoires du secteur sanitaire:

El Tarf	M. Z. Khentouch
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. Bouroudi

Laboratoires d'Hygiène:

Walaya, Bejaïa	M. A. Aksous
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. Chamekh

Laboratoires du secteur:

Cherchell	M. H. Ayad
Kolea	M. M. Achour
Zeralda	M. Y. Charbi
Hadjout	M. A. Khemar
Gouraya	M. A. Taïder
Chlef	M. K. Mehidi

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Section of Zoology	Mr. J. Lykakis
Department of Geology	Mr. G. Ferentinos Mr. S. Varnavas
Department of Thermodynamics	Mr. D. Papailiou
Department of Civil Engineering	Mr. S. G. Grigoropoulos
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Laboratoire d'Hygiène et industrie denrées alimentaires d'origine animale	M. S. Belemlih
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Faculté des Sciences d'Oujda Oujda	M. Ramdani

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Inst. Quimico de Sarria Barcelona 17	Mr. J. Obiols
Colegio Univers. de Castellon Universidad de Valencia Valencia	Mr. J. Medina
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Dept. de Quimica Analitica Universidad de Alicante Carretera de San Vicente s/n Alicante	Mr. F. Ruiz
Instituto Español de Oceanografia C/Alcala, 27 Madrid 28014	Mr. A. Rodriguez

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Institute of Public Health B. Kidrica 52 a 51000 Rijeka	Mr. A. Sablic
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Institute of Public Health Balkanska 46 58000 Split	Ms. N. Stambuk-Giljanovic

Institute for Subtropical Cultures and Environmental Protection Bar Topolica b.b. 85000 Bar	Mr. R. Kljajic
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Biological Institute P.O. Box 39 50001 Dubrovnik	Mr. D. Vilicic
Institute for Marine Biology 82000 Kotor	Mr. B. Stjepcevic

Annex III

List of research projects

a) ongoing projects as at March 1988

b) projects completed in 1987

c) 1987 and 1988 projects under negotiation

a) ongoing projects as at March 1988

ACTIVITY A (DEVELOPMENT AND TESTING OF SAMPLING AND ANALYTICAL TECHNIQUES FOR MONITORING OF MARINE POLLUTANTS)
ACTIVITE A (MISE AU POINT ET ESSAI DE TECHNIQUES D'ECHANTILLONNAGE ET D'ANALYSE POUR LA SURVEILLANCE DES POLLUANTS DE LA MER)

WHO GRE- 53-A A. V. MARCELOU-KINTI/J.A. PAPADAKIS
ATHENS SCHOOL OF HYGIENE, ATHENS
ASHAT

A STUDY ON THE COMPARATIVE DISTRIBUTION OF MICROBIAL AND YEAST POPULATIONS IN SAND AND SEAWATER

82:
83:
84:
85:
86:
87: 4000
88:EXT

FAO ISR- 17-A D. WYNNE
THE KINNERET LIMNOLOGICAL LABORATORY, TIBERIAS
KINNE

ORGANOPHOSPHORUS COMPOUNDS IN THE MARINE ENVIRONMENT - FISH

82:
83:
84:
85:
86: 3000
87: 3000
88:EXT

WHO ISR- 23-A A. MATES
PUBLIC HEALTH LABORATORY, MINISTRY OF HEALTH, HAIFA
MHHAI

A SIMPLE RAPID METHOD FOR ENUMERATION OF E. COLI IN SEAWATER

82:
83:
84:
85:
86:
87: 3000
88:EXT

WHO ISR- 25-A A. MATES
PUBLIC HEALTH LABORATORY, MINISTRY OF HEALTH, HAIFA
MHHAI

THE EFFECT OF SEAWATER PRESERVATION AND STORAGE ON INDICATOR BACTERIAL COUNTS

82:
83:
84:
85:
86:
87: 2750
88:EXT

IOC ITA- 61-A G. C. PAPPALARDO
DIPARTIMENTO DI SCIENZE CHIMICHE, UNIVERSITA DI CATANIA, CATANIA
UCASC

STUDIES AND MONITORING OF MAJOR AND MINOR ELEMENTS IN MEDITERRANEAN SEAWATERS BY SIMULTANEOUS INDUCTIVELY COUPLED PLASMA (ICP) EMISSION SPECTROMETRY

82:
83:
84:
85:
86:NIL
87:NIL
88:EXT

IAEA ITA- 70-A R. CECCHI
OSSERVATORIO GEOFISICO, UNIVERSITA DI MODENA, MODENA
UMOOG

EXPERIMENTAL PROGRESSES IN HEAVY METALS PIXE ANALYSIS IN SEAWATERS

82:
83:
84:
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87: 4000
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED ACHEVE NAC: NOT ACCEPTED NON ACCEPTE UND: UNDER NEGOTIATION EN COURS DE NEGOC. WIT: WITHDRAWN RETIRE NIL: NO ASSISTANCE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

IAEA ITA- 85-A S. GUERZONI
ISTITUTO DI GEOLOGIA MARINA, CNR, BOLOGNA
CNRBO

DEVELOPMENT AND TESTING OF LARGE-VOLUME SAMPLING AND ANALYTICAL TECHNIQUES FOR TRACE METALS IN SUSPENDED AND BOTTOM SEDIMENTS (FOR MONITORING OF MARINE POLLUTANTS)

82:
83:
84:
85:
86:
87: 2000
88:EXT

WHO LIB- 1-A A. F. BOARGOB
ENVIRONMENTAL PROTECTION PROGRAMME, SECRETARIAT OF SCIENTIFIC RESEARCH, TRIPOLI
EPPTR

ASSESSMENT OF MICROBIOLOGICAL POLLUTION IN BATHING SEAWATER IN TRIPOLI

82:
83:
84:
85:
86: 3000
87:NIL
88:EXT

IAEA SPA- 10-A M. GASSIOT-MATAS
INSTITUTO QUIMICA DE SARRIA, BARCELONA
IQSBA

STUDY OF ORGANOCHLORINATED POLLUTANTS TRANSFER THROUGH THE MARINE INTERFACE

82:
83:
84:
85:
86: 6000
87: 6000
88:EXT

FAO TUR- 20-A T. I. BALKAS
DEPT. OF ENVIRONMENTAL ENGINEERING, MIDDLE EAST TECHNICAL UNIVERSITY, ANKARA
UMETA

DEVELOPMENT OF METHODOLOGY FOR THE DETERMINATION OF ORGANOTIN COMPOUNDS

82:
83:
84:
85:
86:
87:
88: 4500

IAEA YUG- 9-A J. MAKJANIC
DEPARTMENT OF PHYSICS, RUDJER BOSKOVIC INSTITUTE, ZAGREB
IRBDP

DEVELOPMENT OF X-RAY EMISSION SPECTROSCOPY AS MULTIELEMENTAL ANALYTICAL TECHNIQUES FOR MONITORING MARINE POLLUTANTS

82:
83:
84: 2000
85:NIL
86:NIL
87:NIL
88:EXT

IAEA YUG- 77-A M. SKREBLIN
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ROVINJ
CMRRO

OPTIMIZATION OF PROCEDURES FOR THE DETERMINATION OF MERCURY IN ENVIRONMENTAL SAMPLES USING THE M-511 GOLD FILM MERCURY ANALYZER

82:
83:
84:
85:
86:
87: 2000
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY B (DEVELOPMENT OF REPORTING FORMATS REQUIRED ACCORDING TO THE DUMPING, EMERGENCY AND LAND-BASED SOURCES PROTOCOLS)
ACTIVITE B (MISE AU POINT DES FORMULAIRES TYPES POUR LES RAPPORTS A SOUMETTRE EN APPLICATION DES PROTOCOLES RELATIFS A L'IMMERSION, A LA POLLUTION RESULTANT DE SITUATIONS CRITIQUES ET A LA POLLUTION D'ORIGINE TELLURIQUE)

WHO TUR- 14-B S. SOYUPAK
DEPT. OF ENVIRONMENTAL ENGINEERING, MIDDLE EAST TECHNICAL UNIVERSITY, ANKARA

DEVELOPMENT OF APPROACHES FOR THE CONTINUOUS ASSESSMENT OF POLLUTANT LOADS

82:		
83:		
UMETA	84:	
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	86:	4000
	87:	3500
	88:	EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED ACHEVE
NAC: NOT ACCEPTED NON ACCEPTE
UND: UNDER NEGOTIATION EN COURS DE NEGOC.
WIT: WITHDRAWN RETIRE
NIL: NO ASSISTANCE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY C (FORMULATION OF THE SCIENTIFIC RATIONALE FOR MEDITERRANEAN ENVIRONMENTAL QUALITY CRITERIA)
ACTIVITE C (ELABORATION DES FONDEMENTS SCIENTIFIQUES DES CRITERES DE QUALITE DE L'ENVIRONNEMENT EN MEDITERRANEE

WHO ITA- 59-C L. VOLTERRA
ISTITUTO SUPERIORE DI SANITA, ROMA

ISUPR

HYGIENIC QUALITY OF SHELLFISH: MICROBIOLOGICAL INDICATORS OF POLLUTION VERSUS OTHER MICROBIOLOGICAL PARAMETERS

82:
83:
84:
85:
86: 3000
87: 3000
88:EXT

WHO ITA- 84-C M. V. TORREGROSSA
ISTITUTO DI IGIENE, UNIVERSITA DI PALERMO, PALERMO

UPLII

BACTERIAL AND CHEMICAL INDICATORS OF COASTAL WATERS POLLUTION OF HUMAN ORIGIN

82:
83:
84:
85:
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87: 4000
88:EXT

WHO MOR- 4-C A. BELEMLIH
INSTITUT AGRONOMIQUE ET VETERINAIRE, HASSAN II, RABAT

IAVRA

BILAN DES POLLUTIONS MICROBIENNES DES EAUX ET COQUILLAGES EN PARALLELE AVEC L'EUTROPHISATION ET LES FLORAISONS DU PLANCTON

82:
83:
84:
85:
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87: 3000
88:EXT

WHO TUR- 15-C G. TUNCEL
DEPT. OF ENVIRONMENTAL ENGINEERING, MIDDLE EAST TECHNICAL UNIVERSITY, ANKARA

UMETA

FORMULATION OF SCIENTIFIC RATIONALE FOR EMISSION STANDARDS OF SELECTED POLLUTANTS

82:
83:
84:
85:
86: 4000
87: 3500
88:EXT

WHO YUG- 63-C V. PRAVDIC
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB

CMRZA

DEVELOPMENT OF MODELS FOR CALCULATION OF ENVIRONMENTAL CAPACITY OF SEAWATER IN THE MEDITERRANEAN

82:
83:
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86: 3500
87: 3000
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED ACHEVE NAC: NOT ACCEPTED NON ACCEPTE UND: UNDER NEGOTIATION EN COURS DE NEGOC. WIT: WITHDRAWN RETIRE NIL: NO ASSISTANCE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY D (EPIDEMIOLOGICAL STUDIES RELATED TO ENVIRONMENTAL QUALITY CRITERIA)
ACTIVITE D (ETUDES EPIDEMIOLOGIQUES RELATIVES AUX CRITERES DE QUALITE DE L'ENVIRONNEMENT)

WHO GRE- 54-D P. VLACHOS
POISON CONTROL CENTRE, CHILDREN'S HOSPITAL "P.A.KYRIAKOU", ATHENS — KYHAT

DERMAL DISEASES IN SEA SWIMMERS

82:
83:
84:
85:
86:
87: 2500
88:EXT

WHO GRE- 58-D M. PAPAPETROPOULOU
PUBLIC HEALTH LABORATORY, UNIVERSITY OF PATRAS, PATRAS — UPPHL

EFFECTS OF BATHING ON HUMAN SKIN FLORA

82:
83:
84:
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88: 4000

WHO GRE- 60-D G. PAPAEVANGELOU
DEPARTMENT OF MEDECINE, ARISTOTELIAN UNIVERSITY OF THESSALONIKI, THESSALONIKI — UTHDM

STUDY OF THE SEWAGE POLLUTION OF THE THERMAIKOS GULF WITH PATHOGENIC MICRO-ORGANISMS. DETECTION OF HEPATITIS A VIRUS IN SEWAGE, SEAWATER AND SHELLFISH

82:
83:
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87:
88: 5000

WHO ISR- 16-D B. FATTAL
ENVIRONMENTAL HEALTH LABORATORY, HEBREW UNIVERSITY, JERUSALEM — UHBEH

EPIDEMIOLOGICAL STUDY OF MORBIDITY AND VIRAL ANTIBODIES AMONG BATHERS EXPOSED TO MICROBIAL POLLUTION OF SEAWATER

82:
83:
84:
85: 10000
86:NIL
87: 6000
88:EXT

WHO ITA- 50-D A. SALLEO
ISTITUTO DI FISIOLOGIA GENERALE, UNIVERSITA DI MESSINA, MESSINA — UMSFG

DISCHARGE MECHANISMS OF THE NEMATOCYSTS OF PELAGIA NOCTILUC. COMPARATIVE AND TOXICOLOGICAL ASPECTS

82:
83:
84:
85:
86:
87: 2000
88:EXT

FAO ITA- 52-D A. RENZONI
DIPARTIMENTO DI BIOLOGIA AMBIENTALE, UNIVERSITA DI SIENA, SIENA — USIBA

EVALUATION OF METHYLMERCURY IN MEDITERRANEAN POPULATIONS: SEAFOOD ANALYSES

82:
83:
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85: 3000
86: 2000
87:NIL
88: 2000

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED (ACHEVE) NAC: NOT ACCEPTED (NON ACCEPTE) UND: UNDER NEGOTIATION (EN COURS DE NEGOC.) WIT: WITHDRAWN (RETIRE) NIL: NO ASSISTANCE (PAS D'ASSISTANCE)
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

WHO ITA- 53-D A. RENZONI
DIPARTIMENTO DI BIOLOGIA AMBIENTALE, UNIVERSITA DI SIENA, SIENA

USIBA

EVALUATION OF METHYLMERCURY IN MEDITERRANEAN POPULATIONS: SAMPLING OF HUMAN HAIR

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

WHO ITA- 82-D A. CARLI
ISTITUTO DI SCIENZE AMBIENTALI MARINE, UNIVERSITA DI GENOVA, GENOVA

UGEAM

ECOLOGICAL AND MEDICAL ASPECTS OF JELLYFISH

82:
83:
84:
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87: 2000
88:EXT

WHO ITA-107-D V. MARIN
INSTITUTE OF HYGIENE, UNIVERSITY OF PADOVA, PADOVA

UPDIH

STUDIES ON THE WATER QUALITY OF THE NORTH ADRIATIC SEA AND ITS EFFECT ON PUBLIC HEALTH

82:
83:
84:
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88: 4000

WHO ITA-114-D B. PACCAGNELLA
DEPARTMENT OF PEDIATRICS, UNIVERSITY OF PADUA, PADUA

UPADP

HEALTH EFFECTS OF FOETAL AND NEONATAL EXPOSURE TO METHYLMERCURY VIA BREAST-FEEDING

82:
83:
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87:
88: 6000

WHO ITA-115-D G. MORETTI
INSTITUTE OF HYGIENE, UNIVERSITY OF PADOVA, PADOVA

UPAIH

STUDY ON THE MERCURY, METHYLMERCURY AND SELENIUM LEVELS IN THE NORTH-EAST ITALIAN COASTAL POPULATIONS

82:
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88: 6000

WHO SPA- 25-D M. G. MARINO
ESCUELA NACIONAL DE SANIDAD, CIUDAD UNIVERSITARIA, MADRID

ENSMA

ASSESSMENT OF SANITARY RISKS ASSOCIATED WITH TBT'S IN THE MARINE ENVIRONMENT

82:
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87: 4000
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

WHO SPA- 26-D P. ROMERO RAYA/J.J. BORREGO GARCI
FACULTY OF SCIENCE, DEPT. OF MICROBIOLOGY, UNIVERSITY OF MALAGA, MALAGA
UMGDM

EPIDEMIOLOGICAL STUDY ON BATHER FROM SEVERAL BEACHES IN MALAGA (SPAIN), ITA RELATIONSHIP TO THE DETECTION AND ENUMERATION OF PATHOGENIC MICROORGANISMS

82:
83:
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85:
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87:
88: 5000

WHO TUR- 18-D G. KOCASOY
BOGAZICI UNIVERSITY,FACULTY OF ENGINEERING, POLL.CONTROL RESEARCH GROUP,ISTANBUL
UBOEP

EFFECT OF TOURISM ON COASTAL POLLUTION

82:
83:
84:
85:
86:
87: 3500
88:EXT

WHO YUG- 83-D Z. MARETIC
MEDICAL CENTRE, PULA
MCPUL

PELAGIA NOCTILUCA AND OTHER TOXIC MARINE ORGANISMS - IMPACT ON HUMAN HEALTH

82:
83:
84:
85:
86:
87: 2250
88:EXT

WHO YUG- 84-D R. BUZINA
INST. FOR DIABETES, SCHOOL OF MEDICINE, ZAGREB
SMZAG

EVALUATION OF METHYLMERCURY IN MEDITERRANEAN POPULATIONS AND RELATED HEALTH HAZARDS

82:
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87: 5000
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY E (GUIDELINES AND CRITERIA FOR THE APPLICATION OF THE LAND-BASED SOURCES PROTOCOL)
ACTIVITE E (DIRECTIVES ET CRITERES POUR L'APPLICATION DU PROTOCOLE RELATIF A LA POLLUTION D'ORIGINE TELLURIQUE)

WHO GRE- 47-E J. GANOULIS
SCHOOL OF TECHNOLOGY, ARISTOTELIAN UNIVERSITY OF THESSALONIKI, THESSALONIKI
UTHST

DEVELOPMENT OF GUIDELINES FOR THE DESIGN OF SUBMARINE OUTFALLS IN THE MEDITERANEAN

82:
83:
84:
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86: 4000
87: 3500
88:EXT

WHO ITA- 88-E G. A. ZAPPONI
ISTITUTO SUPERIORE DI SANITA, ROMA
ISUPR

THE HEALTH COMPONENT OF ENVIRONMENTAL IMPACT ASSESSMENT - EIA OF SELECTED PROJECTS AND DEVELOPMENTS IN THE MEDITERRANEAN COASTAL AREAS

82:
83:
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87: 5000
88:EXT

WHO LIB- 3-E S. OMAR TUMI
PETROLEUM RESEARCH CENTRE, TRIPOLI
PRCTR

ASSESSMENT OF WASTE OIL IN SOCIALIST PEOPLE'S LIBYAN ARAB JAMAHIRIYA

82:
83:
84:
85:
86: 4000
87: 3000
88:EXT

WHO TUR- 19-E K. CURI
BOGAZICI UNIVERSITY,FACULTY OF ENGINEERING, POLL.CONTROL RESEARCH GROUP,ISTANBUL
UBOEP

COASTAL POLLUTION DUE TO SOLID WASTES AND ITS CONTROL BY PROPER DISPOSAL, RECYCLING AND REUSE

82:
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87: 3500
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED ACHEVE NAC: NOT ACCEPTED NON ACCEPTE UND: UNDER NEGOTIATION EN COURS DE NEGOC. WIT: WITHDRAWN RETIRE NIL: NO ASSISTANCE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY F (RESEARCH ON OCEANOGRAPHIC PROCESSES)
ACTIVITE F (RECHERCHES SUR LES PROCESSUS OCEANOGRAPHIQUES)

IOC FRA- 20-F P. M. LEHUCHER
SERVICE HYDRAULIQUE, CENTRE D'ETUDES TECHNIQUE, LES MILLES — SHCET
MEDMODEL (MODELISATION HYDRODYNAMIQUE DU BASSIN OCCIDENTAL DE LA MEDITERRANEE)

82:
83:
84:
85:NIL
86: 4000
87: 3000
88:EXT

IOC GRE- 10-F M. BONAZUNTAS
DEPARTMENT OF CIVIL ENGINEERING, NATIONAL TECHNICAL UNIVERSITY, ATHENS — UNTAT
MODELLING POLLUTANT CIRCULATION IN COASTAL WATERS

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

IOC GRE- 40-F G. FERENTINOS
DEPARTMENT OF GEOLOGY, UNIVERSITY OF PATRAS, PATRAS — UPADG
A STUDY OF THE CIRCULATION PATTERNS IN A FJORD TYPE SEMI-ENCLOSED SEA, AMBRAKIKOS BAY, IONIAN SEA; A) MECHANISMS GOVERNING THE WATER EXCHANGE BETWEEN THE OPEN SEA AND THE FJORD, B) RIVER PLUME DISPERSION

82:
83:
84:
85:
86: 3000
87:NIL
88:EXT

IOC GRE- 48-F M. BONAZUNTAS
DEPARTMENT OF CIVIL ENGINEERING, NATIONAL TECHNICAL UNIVERSITY, ATHENS — UNTAT
OPTIMIZATION OF SEA OUTFALLS

82:
83:
84:
85:
86:
87: 3000
88:EXT

IOC GRE- 50-F C. KOUTITAS
DEPARMENT OF CIVIL ENGINEERING, ARISTOTELIAN UNIVERSITY OF THESSALONIKI — UTHCE
PHYSICAL INVESTIGATION AND MODELLING OF CIRCULATION AND POLLUTANTS TRANSPORT IN AEGEAN SEA

82:
83:
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85:
86:
87: 2000
88:EXT

IOC ITA- 23-F S. CUNSOLO
DEPARTIMENTO DI FISICA,UNIVERSITA "LA SAPIENZA", ROMA — URODF
VERTICAL TRANSPORT PROCESSES OF MARINE WATER NEAR THE ITALIAN COASTS

82:
83:
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85: 6000
86:NIL
87: 3000
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

IOC ITA- 33-F R. SANTANGELO
OSSERVATORIO GEOFISICO, UNIVERSITA DI MODENA, MODENA — UMOOG

APPROXIMATE MODELS FOR THE NORTHERN ADRIATIC SEA AND EXPERIMENTAL CHECKS OF CURRENTS IN FIXED POINTS

82:
83:
84:
85: 8000
86:NIL
87:NIL
88:EXT

IOC ITA- 86-F R. SANTANGELO
OSSERVATORIO GEOFISICO, UNIVERSITA DI MODENA, MODENA — UMOOG

LONGSHORE CURRENTS

82:
83:
84:
85:
86:
87: 3000
88:EXT

IOC ITA- 89-F S. PIERINI
ISTITUTO DI OCEANOLOGIA, ISTITUTO UNIVERSITARIO NAVALE, NAPOLI — IUNNA

LOW FREQUENCY OSCILLATIONS IN THE MEDITERRANEAN SEA

82:
83:
84:
85:
86:
87: 3000
88:EXT

IOC ITA- 90-F F. STRAVISI
ISTITUTO TALASSOGRAFICO DI TRIESTE, TRIESTE — ITTRI

A REVISION OF THE CLIMATOLOGICAL SERIES IN THE NORTHERN ADRIATIC WITH RESPECT TO OCEANOGRAPHIC PROCESSES

82:
83:
84:
85:
86:
87:NIL
88:EXT

IOC SPA- 19-F J. SALAT
INSTITUTO DE INVESTIGACIONES PESQUERAS DE BARCELONA, BARCELONA — IPESQ

EASTERN MEDITERRANEAN DRIFT-CARD EXPERIMENT (DRIFTEX)

82:
83:
84:
85:
86: 3000
87:NIL
88:EXT

IOC YUG- 15-F M. KUZMIC
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB — CMRZA

MATHEMATICAL MODELLING OF HORIZONTAL CIRCULATION AND VERTICAL DISTRIBUTION OF CURRENTS IN THE NORTHERN ADRIATIC

82:
83:
84:NIL
85: 3000
86:NIL
87: 3000
88:EXT

IOC YUG- 68-F M. GACIC
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT — IOFSP

PHYSICAL OCEANOGRAPHY COMPONENT OF POLLUTION MONITORING

82:
83:
84:
85:
86:NIL
87: 4000
88:EXT

IOC YUG- 79-F T. LEGOVIC
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB — CMRZA

RECONSTRUCTION OF A CURRENT FIELD AND CONCENTRATION FIELD OF A POLLUTANT IN COASTAL SEA USING MICROCROMPUTER

82:
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87: 3000
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY G (RESEARCH ON THE TOXICITY, PERSISTENCE, BIOACCUMULATION, CARCINOGENICITY AND MUTAGENICITY OF MARINE POLLUTANTS)
ACTIVITE G (RECHERCHES SUR LA TOXICITE, LA PERSISTANCE, LA BIOACCUMULATION, LA CANCEROGENICITE ET LA MUTAGENICITE DES POLLUANTS DE LA MER)

FAO CYP- 2-G M. HADJICHRISTOPHOROU
FISHERIES DEPARTMENT, MINISTRY OF AGRICULTURE, NICOSIA

EFFECTS OF TURBIDITY AND BLANKETING OF GYPSUM ON LITTORAL AND SUBLITTORAL MARINE ORGANISMS

82:
83:
MAGNI 84:
85:
86: 3000
87:NIL
88:EXT

FAO FRA- 24-G C. CHASSARD-BOUCHAUD
UNIVERSITE P. ET M. CURIE, LABORATOIRE DE BIOLOGIE, PARIS

TOXICITE, PERSISTANCE ET BIOACCUMULATION DU CHROME DANS UNE CHAINE TROPHIQUE D'OGRGANISMES MARINS COMESTIBLES.ASPECTS STRUCTURAUX ULTRA STRUCTURAUX ET MICROANALYTIQUES

82:
83:
UCULB 84:
85:
86: 3000
87:NIL
88: 4000

FAO FRA- 28-G N. VICENTE
CENTRE D'ETUDE DES RESSOURCES ANIMALES MARINES, ST.JEROME, MARSEILLE

EFFETS D'ELEMENTS METALLIQUES (ZN, CU, PB) SUR L'OURSIN COMESTIBLE SOUMIS AUX REJETS URBAINS (MARSEILLE - TOULON) - EXPERIENCES IN VITRO AVEC LE PLOMB

82:
83:
CERAM 84:
85:
86:NAC
87:
88: 4000

FAO FRA- 29-G J. BRUSLE
LABORATOIRE DE BIOLOGIE MARINE, UNIVERSITE DE PERPIGNAN, PERPIGNAN

EXPERIMENTALE DE L'EFFET DU CADMIUM SUR LES JUVENILES (CIVELLES ET ANGUILLETTES) DE L'ANGUILLE EUROPEENNE ANGUILLA ANGUILLA

82:
83:
UPEBM 84:
85:
86: 4000
87: 3000
88:EXT

WHO FRA- 36-G M. LAFAURIE
FACULTE DE MEDECINE, UNIVERSITE DE NICE, NICE

ABSORPTION DES XENOBIOTIQUES BIOTRANSFORMATION ET TUMOROGENESE CHEZ LES POISSONS MARINS

82:
83:
UNIFM 84:
85:
86: 3500
87: 3000
88:EXT

FAO FRA- 39-G C. CHASSARD-BOUCHAUD
UNIVERSITE P. ET M. CURIE, LABORATOIRE DE BIOLOGIE, PARIS

ETUDE DE LA BIOACCUMULATION, DE LA PERSISTANCE ET DE LA TOXICITE DE L'URANIUM ET DU PLUTONIUM CHEZ DES ORGANISMES MARINS MEDITERRANEENS CONSOMMES PAR L'HOMME

82:
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88: 4000

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED ACHEVE NAC: NOT ACCEPTED NON ACCEPTE UND: UNDER NEGOTIATION EN COURS DE NEGOC. WIT: WITHDRAWN RETIRE NIL: NO ASSISTANCE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

FAO GRE- 31-G S. E. PAPOUTSOGLOU
DEPT. OF APPLIED HYDROBIOLOGY, AGRICULTURAL UNIVERSITY COLLEGE OF ATHENS

EFFECT OF CADMIUM AND OTHER POLLUTANTS ON THE SURVIVAL, GROWTH RATE AND REPRODUCTION OF COMMERCIALLY CULTURED MARINE AND BRACKISH WATER FISH OF THE MEDITERRANEAN

UATAG

82:
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85: 4500
86: 3000
87: 3000
88:EXT

FAO GRE- 34-G A. NICOLAIDOU
ZOOLOGICAL LABORATORY, UNIVERSITY OF ATHENS, ATHENS

IDENTIFICATION OF BIOLOGICAL INDICATORS OF HEAVY METALS AT THE SITE OF A SMELTING FACTORY IN LARYMNA, GREECE

UATZO

82:
83:
84:
85:
86: 3000
87: 3000
88:EXT

FAO GRE- 49-G J. CASTRITSI-CATHARIOS
ZOOLOGICAL LABORATORY, UNIVERSITY OF ATHENS, ATHENS

ETUDE DE LA TOXICITE AIGUE ET DES EFFETS SUBLETAUX DES COMPOSANTS D'ORGANOTINE SUR LES NAUPLII D'ARTEMIA SALINHA DE MESSOLONGHI, GRECE

UATZO

82:
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86:NAC
87: 3000
88:NIL

FAO GRE- 59-G X. G. KONDAKIS
PUBLIC HEALTH LABORATORY, UNIVERSITY OF PATRAS, PATRAS

ACCUMULATION OF ORGANOPHOSPHORUS COMPOUNDS AND METALS IN AQUATIC ORGANISMS OF A SALT-WATER LAGOON POLLUTED BY PESTICIDES (KOTYCHI)

UPPHL

82:
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87:
88: 4000

FAO ISR- 15-G Y. ACHITUV
DEPT. OF LIFE SCIENCES, BAR-ILAN UNIVERSITY, RAMAT-GAN

THE INFLUENCE OF POLLUTION BY HEAVY METALS ON VARIOUS PHYSIOLOGICAL ASPECTS AND ENERGY BUDGET OF DONAX TRUNCULUS (BIVALVIA), NASSARIUS CIRCUMCINCTA AND N. GIBBOLOSA (GASTROPODS)

UBIRG

82:
83:
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85: 5000
86: 3000
87: 3000
88:EXT

WHO ISR- 19-G H. RAV-ACHA
SCHOOL OF APPLIED SCIENCES AND TECHNOLOGY, THE HEBREW UNIVERSITY, JERUSALEM

MUTAGENICITY OF CHLORINATED SEAWATER FROM POWER PLANTS COOLING SYSTEMS

UHBAS

82:
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86: 3000
87: 3000
88:EXT

FAO ITA- 64-G V. ALBERGONI
DIPARTIMENTO DI BIOLOGIA, UNIVERSITA DI PADOVA, PADOVA

BIOACCUMULATION STUDIES AND PHYSIOLOGICAL AND BIOCHEMICAL RESPONSES IN MARINE ORGANISMS EXPOSED TO HEAVY METALS AND POLYCHORINATED BIPHENYLS

UPDBA

82:
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THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

FAO ITA- 65-G L. DALLA VENEZIA
ISTITUTO DI BIOLOGIA DEL MARE, CNR, VENEZIA

IBMVE

STUDY OF OSMOREGULATION MECHANISMS IN MARINE INVERTEBRATES UNDER POLLUTION CONDITIONS

82:
83:
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85:
86:NIL
87: 2500
88:EXT

WHO ITA- 66-G S. DE FLORA
ISTITUTO DI IGIENE, UNIVERSITA DI GENOVA, GENOVA

UGEII

MUTAGENICITY OF CHEMICAL COMPOUNDS IN THE MARINE ENVIRONMENT

82:
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86: 3000
87: 2500
88:EXT

WHO ITA- 79-G G. P. DE RENZI
FACOLTA DI MEDICINA, UNIVERSITA DI ROMA, ROMA

UROFM

CORRELATION BETWEEN MARINE POLLUTANTS AND DEGENERATIVE DISEASE

82:
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86: 3000
87: 3000
88:EXT

WHO ITA- 80-G G. L. BRONZETTI
ISTITUTO DI MUTAGENESI E DIFFERENZIAMENTO DEL CNR, PISA

CNRPI

SHORT TERM TEST IN THE MUTAGENIC AND CARCINOGENIC DETECTION OF SEAWATER POLLUTANTS

82:
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86: 3000
87: 2500
88:EXT

FAO ITA- 83-G R. CAPELLI
ISTITUTO DI CHIMICA GENERALE, UNIVERSITA DI GENOVA, GENOVA

UGECG

TIN, ORGANOTIN COMPOUNDS AND THALLIUM IN MARINE ORGANISMS

82:
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87: 3000
88:EXT

FAO ITA- 97-G C. BARGHIGIANI
CENTRO INTERUNIVERSITARIO DI BIOLOGIA MARINA, LIVORNO

CIBML

MERCURY PRESENCE IN BENTHIC ORGNISMS OF THE NORTHERN TYRRHENIAN SEA IN RELATION TO THE CINNABAR ANOMALY OF MOUNT AMIATA

82:
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87: 3000
88:EXT

WHO ITA-113-G G. PAGANO
ISTITUTO NAZIONALE TUMORI, NAPOLI

INTNA

IDENTIFICATION AND BIOLOGICAL MONITORING OF SUB-LETHAL RISK FACTORS IN WATER AND SEDIMENTS OF TWO RIVERS IN CAMPANIA REGION, ITALY

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THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED ACHEVE NAC: NOT ACCEPTED NON ACCEPTE UND: UNDER NEGOTIATION EN COURS DE NEGOC. WIT: WITHDRAWN RETIRE NIL: NO ASSISTANCE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

FAO MAL- 4-G V. AXIAK
BIOLOGY SECTION, MATHS AND SCIENCES DEPT., UNIVERSITY OF MALTA — UMLBS
AN INVESTIGATION ON THE BIOLOGICAL RESPONSES TO THE ORGANOPHOSPORUS PESTICIDES OF SELECTED MARINE INVERTEBRATES

82:
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86: 3000
87: 3000
88:EXT

FAO MOR- 2-G M. KESSABI
INSTITUT NATIONAL AGRONOMIQUE ET VETERINAIRE, RABAT — INAVR
RECHERCHE SUR LA TOXICITE, LA PERSISTANCE ET LA BIOACCUMULATION DES CERTAINS POLLUANTS

82:
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85: 5000
86: 2000
87: 3500
88:EXT

FAO SPA- 13-G J. MEDINA ESCRICHE
UNIVERSITY COLLEGE OF CASTELLON, UNIVERSITY OF VALENCIA, VALENCIA — UVAUC
STUDY OF THE TOXICITY, BIOACCUMULATION AND PERSISTENCE OF SOME HEAVY METALS AND PESTICIDES IN THE CRAYFISH PROCAMBARUS CLARKII (GIRARD) ON THE ALBUFERA LAKE OF VALENCIA (SPAIN)

82:
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85: 4000
86: 3000
87: 3000
88:EXT

FAO SPA- 20-G B. MORALES-NIN
INSTITUTO DE CIENCIAS DEL MAR, BARCELONA — ICMBA
LIFE HISTORY PATTERNS OF MEDITERRANEAN BLUEFIN TUNA

82:
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86: 3000
87: 3000
88:EXT

FAO YUG- 47-G N. FANUKO
MARINE RESEARCH AND TRAINING CENTRE, PIRAN — MRTCP
TOXICITY OF CADMIUM, MERCURY AND PCBS TO THE REPRESENTATIVE NORTHERN-ADRIATIC PHYTOPLANKTON SPECIES CULTURED IN VITRO

82:
83:
84:
85: 4000
86:NIL
87: 3000
88:EXT

FAO YUG- 53-G M. OZRETIC
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ROVINJ — CMRRO
SERUM ENZYMES IN FISH AS BIOCHEMICAL INDICATORS OF MARINE POLLUTION

82:
83:
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85: 5000
86:NIL
87: 3000
88:EXT

FAO YUG- 57-G C. LUCU
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ROVINJ — CMRRO
INTERACTION OF METAL POLLUTANTS WITH GILL EPITHELIA OF MARINE ORGANISMS. TRANSPORT AND EFFECTS

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THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED (ACHEVE) NAC: NOT ACCEPTED (NON ACCEPTE) UND: UNDER NEGOTIATION (EN COURS DE NEGOC.) WIT: WITHDRAWN (RETIRE) NIL: NO ASSISTANCE (PAS D'ASSISTANCE)
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

FAO YUG- 70-G B. OZRETIC
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ROVINJ

DEVELOPMENT OF SHORT-TERM TOXICITY TESTS: THE USE OF SEA URCHIN GAMETES AND THEIR DEVELOPMENTAL STAGES

CMRRO

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WHO YUG- 71-G R. BATEL
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ROVINJ

GENOTOXIC RISK ASSESSMENT IN THE MARINE ENVIRONMENT USING INVERTEBRATES AS INDICATOR ORGANISMS

CMRRO

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FAO YUG- 72-G J. PAVICIC
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB

METAL-BINDING PROTEINS SIMILAR TO METALLOTHIONEINS AS A POTENTIAL INDICATOR OF METAL POLLUTION

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THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY H (EUTROPHICATION AND CONCOMITANT PLANKTON BLOOMS)
ACTIVITE H (EUTROPHISATION ET FLORAISONS CONCOMITANTES DE PLANCTON)

FAO ALG- 9-H F. L. SAMSON
INSTITUT DES SCIENCES DE LA NATURE, U.S.T.H.B., ALGER — USTHB
EUTROPHISATION ET FLORAISONS CONCOMITANTES DE PLANCTON

82:
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88: 4000

FAO GRE- 61-H N. S. MARGARIS
DEPARTMENT OF ENVIRONMENT, UNIVERSITY OF THE AEGEAN, KOS — UAGDE
MODERN AGRICULTURAL PRACTICES AND THE EUTROPHICATION IN THE PAGASSITIKOS GULF

82:
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88: 4000

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

82:
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86: 3000
87: 3000
88:EXT

FAO ITA- 93-H F. BOERO
BIOLOGY DEPTARTMENT, UNIVERSITY OF LECCE, LECCE — ULEBD
ACTIVITY, BEHAVIOUR AND DIET OF JELLYFISH ALONG THE LIGURIAN COAST

82:
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87: 3000
88:EXT

FAO YUG- 43-H I. MARASOVIC
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT — IOFSP
STUDIES OF TOXIC DINOFLAGELLATE SPECIES IN THE INSHORE WATERS OF THE EAST ADRIATIC COAST

82:
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85: 3000
86: 3000
87: 3000
88:EXT

FAO YUG- 82-H T. LEGOVIC
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB — CMRZA
LONG-TERM EUTROPHICATION OF THE NORTHERN ADRIATIC SEA: EVIDENCE AND CONTROL

82:
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88: 4000

FAO YUG- 87-H V. ZUTIC
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB — CMRZA
EUTROPHICATION PROCESSES IN THE KRKA ESTUARY (ADRIATIC SEA)

82:
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THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY I (POLLUTION-INDUCED ECOSYSTEMS MODIFICATIONS)
ACTIVITE I (MODIFICATION DES ECOSYSTEMES PAR LA POLLUTION)

FAO ALG- 8-I R. SEMROUD
INSTITUT DES SCIENCES DE LA NATURE, U.S.T.H.B., ALGER — USTHB
MODIFICATIONS DES ECOSYSTEMES PAR LA POLLUTION

82:
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88: 4000

FAO FRA- 37-I J. GOY
ICHTYOLOGIE GENERALE ET APPLIQUEE, MUSEUM NATIONAL D'HISTOIRE NATURELLE, PARIS — MNHNP
EVOLUTION DE L'ECOSYSTEME PELAGIQUE DEPUIS LE DEBUT DU SIECLE EN MER LIGURE, MODELISATION DE SON FONCTIONNEMENT EN MILIEUX NATUREL ET PERTURBE

82:
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87: 3500
88:EXT

FAO FRA- 41-I P. BERNARD
INST. NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE, UNITE INSERM, NICE — INSER
IMPACT DE LA POLLUTION (CHIMIQUE ET BACTERIOLOGIQUE) SUR LA PHYSIOLOGIE ET LA COMPOSITION CHIMIQUE DE POSIDONIA OCEANICA

82:
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88: 3500

FAO ISR- 24-I B. S. GALIL
DEPT OF ZOOLOGY, TEL AVIV UNIVERSITY, TEL AVIV — UTADZ
POLLUTION INDUCED MODIFICATIONS IN THE COMPOSITION AND DIVERSITY OF PLANKTONIC LARVAL DECAPODA OFF THE MEDITERRANEAN COAST OF ISRAEL

82:
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87: 3000
88:EXT

FAO ITA- 94-I G. BRESSAN
LABORATORY OF MARINE BIOLOGY - CIMAM, TRIESTE — CIMAM
MONITORAGE DES PHANEROGAMES MARINES DU GOLFE DE TRIESTE: ANALYSE DES VARIATIONS DE L'ECOSYSTEME

82:
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87: 3000
88:EXT

FAO LEB- 3-I S. H. LAKKIS
MARINE RESEARCH CENTRE, BEIRUT — MRCBE
POLLUTION-INDUCED ECOSYSTEMS MODIFICATIONS: SURVEY ON ICHTHYOPLANKTON ALONG THE COAST OF LEBANON PARTICULARLY IN POLLUTED ZONES

82:
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86: 3000
87: 3000
88:EXT

FAO YUG- 76-I A. Z. LOVRIC
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB — CMRZA
ECOLOGICAL MAPPING OF PHYTO-INDICATORS OF COASTAL POLLUTION INDUCED DEGRADATION ALONG THE EAST ADRIATIC COAST, ISLANDS AND ESTUARIES

82:
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THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY J (EFFECTS OF THERMAL DISCHARGES ON COASTAL ORGANISMS AND ECOSYSTEMS)
ACTIVITE J (EFFETTS DES POLLUTIONS THERMIQUES SUR LES ORGANISMES ET ECOSYSTEMES COTIERS)

FAO ALG- 6-J A. BAKALEM 82:
INSTITUT DES SCIENCES DE LA MER ET DE L'AMENAGEMENT DU LITTORAL (ISMAL), ALGER 83:
ISMAL 84:
EFFETS DES POLLUTIONS THERMIQUES SUR LES ORGANISMES ET ECOSYSTEMES COTIERES 85:
86: 3000
87: 3000
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY K (BIOGEOCHEMICAL CYCLES OF SPECIFIC POLLUTANTS)
ACTIVITE K (CYCLE BIOGEOCHIMIQUE DE CERTAINS POLLUANTS)

WHO FRA- 16-K P. BERNARD
INST. NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE, UNITE INSERM, NICE

RECHERCHE DE DERMATOPHYTES ET MOISISSURES PATHOGENES DANS LE SABLE DES ZONES MARINES A VOCATION BALNEAIRE PAR METHODE DE FILTRATION SUR MEMBRANES ET SENSIBILITE DES DERMATOPHYTES ISOLES VIS-A-VIS DE CERTAINS ANTIFONGI

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	87:NIL
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WHO FRA- 17-K M. GAUTHIER
INST. NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE, UNITE INSERM, NICE

ADAPTATION DES ENTEROBACTERIES PATHOGENES A L'EAU DE MER

	82:
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	86: 3500
	87: 3000
	88:EXT

WHO FRA- 34-K Y. MARTIN
DEPARTEMENT RECHERCHE, FONDATION OCEANOGRAPHIQUE RICARD, SIX FOURS LES PLAGES

APPORTS PAR LES EFFLUENTS URBAINS ET CAPACITE DE SURVIE DANS LE MILIEU MARIN DE CERTAINS MICROORGANISMES PATHOGENES

	82:
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FAO FRA- 40-K M. ROMEO
I.N.S.E.R.M., UNITE 303 "MER ET SANTE", VILLEFRANCHE-SUR-MER

IMPORTANCE DU MACROPLANCTON GELATINEUX DANS LE STOCKAGE ET LE TRANSFERT DE METAUX POLLUANTS (CADMIUM, CUIVRE, PLOMB ET ZINC) EN MEDITERRANEE NORD-OCCIDENTALE

	82:
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WHO FRA- 44-K M. J. GAUTHIER
INST. NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE, UNITE INSERM, NICE

EVOLUTION PHENOTYPIQUE ET GENETIQUE DES ENTEROBACTERIES PATHOGENES DANS LE MILIEU MARIN (EAU, SEDIMENTS, BIOMASSE)

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	88: 3000

IAEA GRE- 37-K A. P. GRIMANIS
CHEMISTRY DEPARTMENT, "DEMOKRITOS" NUCLEAR RESEARCH CENTRE, ATHENS

TRANSFER OF POLLUTANTS (HEAVY METALS-HYDROCARBONS) IN THE MARINE ENVIRONMENT OF SARONIKOS GULF

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WHO GRE- 52-K V. KRIKELIS
T.E.I., DEPT. OF VIROLOGY, LARISSA

INACTIVATION OF VIRUSES IN AQUATIC ENVIRONMENTS

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THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

WHO GRE- 57-K V. KRIKELIS
MUNICIPAL WATER SEWAGE COMPANY OF LARISSA (DEYAL), LARISSA — MWSLA

TRANSFER OF MICROBIAL AND CHEMICAL POLLUTANTS FROM THE RIVER OF PINEOS TO COASTAL WATERS OF STOMION

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FAO GRE- 62-K K. FYTIANOS
CHEMISTRY DEPARTMENT, ARISTOTELIAN UNIVERSITY OF THESSALONIKI, THESSALONIKI — UTHCD

STUDY OF BIOGEOCHEMICAL CYCLE OF ORGANOSPHOSPHORUS PESTICIDES IN THERMAIKOS GULF, GREECE

82:
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88: 4000

FAO ITA- 68-K E. BACCI
DIPARTIMENTO DI BIOLOGIA AMBIENTALE, UNIVERSITA DI SIENA, SIENA — USIBA

ENVIRONMENTAL DISTRIBUTION AND FATE OF ORGANOTIN COMPOUNDS (MAINLY BUTYLTIN AND METHYLTIN SPECIES) WITH PARTICULAR ATTENTION TO THE MARINE ENVIRONMENT

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87: 4000
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FAO ITA- 69-K F. BALDI
DIPARTIMENTO DI BIOLOGIA AMBIENTALE, UNIVERSITA DI SIENA, SIENA — USIBA

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:
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87: 3000
88:EXT

FAO ITA- 96-K E. TARAMELLI-RIVOSECCHI
ISTITUTO DI ZOOLOGIA, UNIVERSITA DI ROMA "LA SAPIENZA", ROMA — UROSA

CADMIUM IN WATER, SEDIMENTS AND BENTHIC ORGANISMS FROM A STRETCH OF COAST FACING THE THERMOELECTRIC POWER STATION AT TORVALDALIGA

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87: 3000
88:EXT

FAO ITA-104-K R. FERRARA
CENTRO INTERUNIVERSITARIO DI BIOLOGIA MARINA, LIVORNO — CIBML

ROLE OF POSIDONIA OCEANICA (L.), DELILE PRAIRIES ON BIOAVAILABILITY OF MERCURY IN MARINE ENVIRONMENT

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88:EXT

WHO SPA- 6-K P. ROMERO RAYA
FACULTY OF SCIENCE, DEPT. OF MICROBIOLOGY, UNIVERSITY OF MALAGA, MALAGA — UMGDM

STUDIES ON SURVIVAL OF PATHOGENIC MICROORGANISMS IN SEAWATER

82:
83:
84: 4500
85: 4500
86:NIL
87: 3000
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED (ACHEVE) NAC: NOT ACCEPTED (NON ACCEPTE) UND: UNDER NEGOTIATION (EN COURS DE NEGOC.) WIT: WITHDRAWN (RETIRE) NIL: NO ASSISTANCE (PAS D'ASSISTANCE)
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

WHO SPA- 22-K J. IZQUIERDO
LABORATORIO MUNICIPAL, BARCELONA
LMBAR

ESTUDIO DE LA ACUMULACION Y SUPERVIVENCIA DE ELEMENTOS PATOGENOS (BACTERIAS Y ENTEROVIRUS) Y ELEMENTOS TOXICOS (METALES PESADOS) DE ORGANISMOS FILTRADORES EN AGUA DE MAR

82:
83:
84:
85:
86:
87:
88: 3000

IAEA TUR- 17-K S. PORTAKAL
RADIOBIOLOGY, NUCLEAR RESEARCH AND TRAINING CENTRE, ISTANBUL
NRTCI

DETERMINATION OF THE MEDITERRANEAN SURFACE WATERS AND SEDIMENTS 238PU, 239 240PU, 137CS, 60CO AND 90SR LEVELS AT THE SOUTH AND WEST COAST OF TURKEY

82:
83:
84:
85:
86:
87: 4000
88:EXT

IAEA YUG- 11-K M. BRANICA
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB
CMRZA

ANTHROPOGENIC INFLUENCE ON THE DISTRIBUTION AND FLUXES OF LEAD SPECIES INTO THE MARINE ENVIRONMENT

82:
83:
84: 4000
85:NIL
86: 4000
87:NIL
88:EXT

IAEA YUG- 22-K N. AJDACIC
UNIVERSITY "VELJKO VLAHOVIC", TITOGRAD
UTITO

ACCUMULATION AND TRANSPORT OF RADIONUCLIDES IN THE BIOTA OF THE SOUTH ADRIATIC REGION

82:
83:
84: 2000
85:NIL
86:NIL
87:NIL
88:EXT

FAO YUG- 49-K T. IVONARIC
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT
IOFSP

STUDY OF THE MERCURY ECOCYCLE IN THE MARINE SYSTEM OF THE KASTELA BAY

82:
83:
84:
85: 4500
86: 3000
87: 3000
88:EXT

FAO YUG- 64-K M. BRANICA
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB
CMRZA

BIOGEOCHEMICAL CYCLE OF MERCURY SPECIES IN THE MARINE ENVIRONMENT

82:
83:
84:
85:
86: 3000
87: 4000
88:EXT

IAEA YUG- 78-K A. MALEJ
MARINE RESEARCH AND TRAINING CENTRE, PIRAN
MRTCP

CHEMICAL AND ISOTOPIC COMPOSITION OF MARINE ORGANIC MATTER AS INDICATORS OF ITS ORIGIN

82:
83:
84:
85:
86:
87: 4000
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED ACHEVE NAC: NOT ACCEPTED NON ACCEPTE UND: UNDER NEGOTIATION EN COURS DE NEGOC. WIT: WITHDRAWN RETIRE NIL: NO ASSISTANCE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY L (POLLUTANT-TRANSFER PROCESSES)
ACTIVITE L (PROCESSUS DE TRANSFERT DES POLLUANTS)

IOC ALG- 5-L D. AIT-KACI-AHMED
INSTITUT DES SCIENCES DE LA MER ET DE L'AMENAGEMENT DU LITTORAL (ISMAL), ALGER
ISMAL

LA DYNAMIQUE DE PRODUITS POLLUANTS ASSOCIES AUX APPORTS FLUVIAUX EN SUSPENSION ET LEUR DISPERSION DANS LES SEDIMENTS DU PLATEAU CONTINENTAL ALGERIEN

82:
83:
84:
85:
86: 3000
87:NIL
88:EXT

WMO FRA- 15-L J. MORELLI
ECOLE NORMALE SUPERIEURE, PARIS
ENSUP

CONTRIBUTION A L'ETUDE DU CYCLE DE METAUX POTENTIELLEMENT TOXIQUES DANS L'ENVIRONNEMENT ATMOSPHERIQUE MEDITERRANEEN. ORIGINES ET EVALUATION DE L'APPORT AU MILIEU MARIN

82:
83:
84:
85:
86:NIL
87: 1000
88:EXT

IAEA FRA- 18-L J. M. MARTIN (COMBINED WITH FRA-23/L)
ECOLE NORMALE SUPERIEURE, PARIS
ENSUP

MECANISMES DE TRANSFERT DE RADIONUCLEIDES ARTIFICIELS ENTRE LE RHONE ET LA MEDITERRANEE. APPORTS DE RADIOELEMENTS A RTIFICIELS PAR LE RHONE A LA MEDITERRANEE

82:
83:
84:
85:NIL
86:NIL
87:WIT
88: 3000

WMO FRA- 32-L P. BUAT-MENARD
CENTRE DES FAIBLES RADIOACTIVITES, LABORATOIRE DU CNRS, GIF-SUR-YVETTE
CNRSG

DYNAMIQUE DU TRANSPORT ET DE LA RETOMBEE ATMOSPHERIQUEDES POLLUANTS METALLIQUES (CD, PB, ZN, CU) EN MER LIGURE: REPONSE DE LA COLONNE D'EAU AUX PERTURBATIONS INDUITES

82:
83:
84:
85:
86:NIL
87: 3000
88:EXT

IOC GRE- 35-L M. BONAZUNTAS
DEPARTMENT OF CIVIL ENGINEERING, NATIONAL TECHNICAL UNIVERISTY, ATHENS
UNTAT

OPTIMIZATION OF POLLUTANT TRANSFER REDUCTION TO THE MEDITERRANEAN FROM LAND-BASED AND RIVER SOURCES

82:
83:
84:
85:
86: 4000
87:NIL
88:EXT

IAEA GRE- 36-L S. VARNAVAS
DEPARTMENT OF GEOLOGY, UNIVERSITY OF PATRAS, PATRAS
UPADG

A STUDY OF THE BEHAVIOUR OF HEAVY METALS IN RELATION TO SEDIMENTATION AND HYDRAULIC PROCESSES IN A SEMI-ENCLOSED INDUSTRIALIZED EMBAYMENT, PATRAIKOS BAY, WESTERN GREECE

82:
83:
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87: 3000
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

IAEA GRE- 46-L G. VASILIKIOTIS/KARAISKAKIS
CHEMISTRY DEPARTMENT, ARISTOTELIAN UNIVERSITY OF THESSALONIKI, THESSALONIKI UTHCD

TRANSPORT MECHANISMS DISTRIBUTION AND MOBILIZATION OF HEAVY METALS IN WATER AND SEDIMENTS IN AXIOS RIVER, ITS ESTUARIES AND THERMAIKOS GULF

82:
83:
84:
85:
86: 2500
87:WIT
88: 2500

IAEA GRE- 51-L P. KOUTSOUKOS
PHYSICAL CHEMISTRY LABORATORY, UNIVERSITY OF PATRAS, PATRAS UPAPC

THE INTERACTION OF POLLUTANTS AT THE AIR/WATER/SEDIMENT INTERFACES

82:
83:
84:
85:
86:
87: 4000
88:EXT

WMO ISR- 20-L U. DAYAN / J.M. MILLER
HEBREW UNIVERSITY OF JERUSALEM UHBRE

METEOROLOGICAL REVIEW FOR THE ASSESSMENT OF ATMOSPHERIC TRANSPORT OF POLLUTANTS INTO THE MEDITERRANEAN

82:
83:
84:
85:
86: 5800
87: 1600
88:EXT

WMO ISR- 21-L Y. MAHRER
FACULTY OF AGRICULTURE, HEBREW UNIVERSITY OF JERUSALEM UHBFA

THREE DIMENSIONAL MODELLING OF THE EFFECTS OF SEA AND LAND BREEZES ON POLLUTION TRANSPORT IN THE EASTERN MEDITERRANEAN SEA

82:
83:
84:
85:
86:
87: 3000
88:EXT

WMO ISR- 22-L E. WAKSHAL
HEBREW UNIVERSITY OF JERUSALEM UHBRE

CHEMICAL COMPOSITION OF MAJOR ELEMENTS AND CADMIUM CONTENT OF RAINWATER AND SUSPENDED PARTICULATE MATTER ALONG THE CENTRAL COASTAL PLAIN OF ISRAEL

82:
83:
84:
85:
86:
87: 4500
88:EXT

IAEA ISR- 30-L M. D. KROM
ISRAEL OCEANOGRAPHIC AND LIMNOLOGICAL RESEARCH INSTITUTE, HAIFA IOLRI

DETERMINATION OF THE TOTAL INVENTORY AND SPATIAL DISTRIBUTION OF POLLUTANT TRACE METALS FROM LAND-BASED SOURCES IN THE SEDIMENTS FROM HAIFA BAY, ISRAEL

82:
83:
84:
85:
86:
87:
88: 4000

IAEA ITA- 3-L O. HIEKE MERLIN (SEE ALSO ITA/32-L)
ISTITUTO CHIMICA GENERALE ED INORGANICA SEZIONE MINERALOGICA, VENEZIA ICGIV

TEXTURAL AND MINERALOGICAL CHARACTERS AND ROLE IN THE POLLUTION PROCESSES OF BOTTOM SEDIMENTS IN THE NORTHERN ADRIATIC SEA

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

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

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ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

IAEA ITA- 32-L R. FRACHE (SEE ALSO ITA/03-L)
ISTITUTO DI CHIMICA GENERALE, UNIVERSITA DI GENOVA, GENOVA

CHEMISTRY AND DYNAMICS IN THE TRANSPORT OF HEAVY METALS IN PARTICULATE MATTER IN LIGURIAN AND TYRRHENIAN SEA

UGECG

82:
83:
84:NIL
85:NIL
86:NIL
87:NIL
88:EXT

WMO ITA- 41-L G. CLERICI
OSSERVATORIO METEOROLOGICO DI BRERA, MILANO

TRANSPORT OF HEAVY METALS INTO THE MEDITERRANEAN SEA

OMBMI

82:
83: 8555
84: 3160
85: 5340
86:NIL
87:NIL
88:EXT

IOC ITA- 56-L G. FIERRO
ISTITUTO DI GEOLOGIA, UNIVERSITA DI GENOVA, GENOVA

SEDIMENT AND PARTICULATE MATTER STUDIES IN THE LIGURIAN SEA; MECHANISM OF INTERACTION WITH POLLUTANT MATTER

UGEIG

82:
83:
84:
85: 8000
86:NIL
87: 3000
88:EXT

WMO ITA- 60-L A. PALUMBO
OSSERVATORIO METEOROLOGICO, UNIVERSITA DI NAPOLI, NAPOLI

ATMOSPHERIC SOURCES OF OCEANIC POLLUTION

UNAOM

82:
83:
84:
85:
86:
87: 2000
88:EXT

WMO ITA- 63-L S. GUERZONI
ISTITUTO DI GEOLOGIA MARINA, CNR, BOLOGNA

RIVERINE AND ATMOSPHERIC TRANSPORT OF DUSTS AND CONTAMINANTS INTO THE MEDITERRANEAN REGION

CNRBO

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

IOC ITA- 73-L R. SANTANGELO
OSSERVATORIO GEOFISICO, UNIVERSITA DI MODENA, MODENA

BOX MODEL FOR EVOLUTION OF METALS IN MEDITERRANEAN SEA

UMOOG

82:
83:
84:
85:
86:NIL
87:NIL
88:EXT

IOC ITA- 99-L R. PURINI
ISTITUTO DI FISICA DELL'ATMOSFERA, CNR, ROMA

AIR-SEA INTERACTIONS IN THE MEDITERRANEAN SEA

CNRRO

82:
83:
84:
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87:NIL
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

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EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

IOC ITA-103-L S. GUERZONI
ISTITUTO DI GEOLOGIA MARINA, CNR, BOLOGNA

TRANSPORT OF POLLUTANTS BY SEDIMENTATION

CNRBO
82:
83:
84:
85:
86:
87: 2000
88:EXT

WMO MOR- 3-L M. NEJJAR
ECOLE MOHAMMADIA D'INGENIEURS, RABAT

CONTRIBUTION A L'ETUDE DES MECANISMES DE TRANSFERTS DES POLLUANTS AUX POINTS DE CONTACT ENTRE LES COURS D'EAU ET LA MER ET A L'INTERFACE AIR/MER

EMIRA
82:
83:
84:
85:
86:
87: 1500
88:EXT

WMO SPA- 8-L A. CRUZADO
CENTRO DE ESTUDIOS AVANZADOS DE BLANES, GIRONA

STUDY OF LONG AND MEDIUM RANGE ATMOSPHERIC POLLUTANT TRANSPORT INTO THE NORTH WEST MEDITERRANEAN SEA

CEABL
82:
83:
84:
85: 5000
86:NIL
87:NIL
88:EXT

IOC SPA- 16-L J. ALBAIGES
INSTITUTE OF BIO-ORGANIC CHEMISTRY, BARCELONA

TRANSPORT AND FATE OF WASTEWATER DISCHARGES OF THE CITY OF BARCELONA AND ADJACENT RIVERS (BESOS AND LLOBREGAT) INTO THE COASTAL WATER

ICHBA
82:
83:
84:
85: 8000
86: 3000
87: 3000
88:EXT

IOC TUR- 16-L U. UNLUATA
MIDDLE EAST TECHNICAL UNIVERSITY, ERDEMLI-ICEL

TRANSPORT OF WATER AND SELECTED SUBSTANCES THROUGH THE STRAIT OF CANAKKALE - THE SEA OF MARMARA - THE STRAIT OF INSTANBUL: A REVIEW

UMETE
82:
83:
84:
85:
86:
87: 4000
88:EXT

IAEA YUG- 10-L V. PRAVDIC
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB

THE ROLE OF SEDIMENTS AND SUSPENDED MATTER IN THE TRANSFER OF SELECTED POLLUTANTS IN THE NORTHERN ADRIATIC BASIN

CMRZA
82:
83:
84: 4000
85:NIL
86:NIL
87:NIL
88:EXT

WMO YUG- 29-L Z. I. JANJIC
FEDERAL HYDROMETEOROLOGICAL INSTITUTE, BELGRADE

DEFINITION OF SYNOPTIC SCALE DRIVING PARAMETERS FOR A MODEL OF ATMOSPHERIC POLLUTION TRANSPORT TOWARDS AND INTO THE MEDITERRANEAN SEA

FHIBL
82:
83:
84:
85:
86:
87: 1500
88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

WMO YUG- 73-L L. KLASINC PHYSICAL CHEMISTRY DEPARTMENT, RUDJER BOSKOVIC INSTITUTE, ZAGREB PHOTOCHEMICAL OXIDANTS IN THE TROPOSPHERE - SIGNIFICANCE OF LAND TO SEA TRANSPORT IN THE MEDITERRANEAN	IRBPC	82: 83: 84: 85: 86: 87: 3500 88:EXT
WMO YUG- 80-L Z. I. JANJIC FEDERAL HYDROMETEOROLOGICAL INSTITUTE, BELGRADE PRELIMINARY STUDY OF POTENTIAL LONG-RANGE CADMIUM TRANSPORT FROM MAJOR IDENTIFIED SOURCES IN EUROPE INTO THE MEDITERRANEAN REGION	FHIBL	82: 83: 84: 85: 86: 87: 9000 88:EXT

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

b) projects completed in 1987

ACTIVITY A (DEVELOPMENT AND TESTING OF SAMPLING AND ANALYTICAL TECHNIQUES FOR MONITORING OF MARINE POLLUTANTS)
ACTIVITE A (MISE AU POINT ET ESSAI DE TECHNIQUES D'ECHANTILLONNAGE ET D'ANALYSE POUR LA SURVEILLANCE DES POLLUANTS DE LA MER)

IOC ISR- 12-A A. GOLIK
ISRAEL OCEANOGRAPHIC AND LIMNOLOGICAL RESEARCH INSTITUTE, HAIFA — IOLRI

QUANTITATIVE ESTIMATION OF BEACH TAR BALLS BY REMOTE SENSING

82:
83:
84:
85: 6000
86:NIL
87:COM
88:

WHO ISR- 13-A Y. YOSHPE-PURER
DR. A. FELIX PUBLIC HEALTH LABORATORY, MINISTRY OF HEALTH, TEL AVIV — FELIX

DETERMINATION OF THE MOST SUITABLE MEDIUM FOR ENUMERATION OF FAECAL STREPTOCOCCI IN MARINE WATERS

82:
83:
84:
85: 4000
86: 3500
87:COM
88:

WHO ISR- 14-A A. MATES
PUBLIC HEALTH LABORATORY, MINISTRY OF HEALTH, HAIFA — MHHAI

DETERMINATION OF E. COLI. FROM FAECAL COLIFORMS IN SEAWATER BY THE MEMBRANE FILTRATION CULTURE METHOD

82:
83:
84:
85: 4000
86: 3500
87:COM
88:

IAEA ITA- 19-A M. GALLORINI
CNR CENTRO DI RADIOCHIMICA, UNIVERSITA DI PAVIA, PAVIA — UPDCR

NUCLEAR METHODS FOR TRACE ELEMENTS DETERMINATION IN ENVIRONMENTAL RELATED MATRICES

82:
83:
84: 3000
85:NIL
86:NIL
87:COM
88:

FAO ITA- 57-A V. U. FOSSATO
ISTITUTO DI BIOLOGIA DEL MARE, CNR, VENEZIA — IBMVE

TESTING OF THE METHOD OF ANALYSIS OF DDTS AND PCBS IN MARINE ORGANISMS

82:
83:
84:
85: 3000
86:NIL
87:COM
88:

FAO SPA- 14-A J. OBIOLS SALVAT
INSTITUTO QUIMICO DE SARRIA, BARCELONA — IQSBA

STUDIES ON METHODOLOGY FOR DETERMINATION OF TOTAL ARSENIC IN SELECTED MARINE ORGANISMS

82:
83:
84:
85: 3000
86: 3000
87:COM
88:

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

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EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

IOC YUG- 18-A B. COSOVIC CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB		82: 83:
	CMRZA	84:
DEVELOPMENT OF NEW ELECTROANALYTICAL TECHNIQUES FOR DETERMINATION OF SURFACE ACTIVE SUBSTANCES AND DETERGENTS IN SEAWATER AND SEA SURFACE MICROLAYER		85: 3500 86: 3000 87:COM 88:

ACTIVITY C (FORMULATION OF THE SCIENTIFIC RATIONALE FOR MEDITERRANEAN ENVIRONMENTAL QUALITY CRITERIA)
ACTIVITE C (ELABORATION DES FONDEMENTS SCIENTIFIQUES DES CRITERES DE QUALITE DE L'ENVIRONNEMENT EN MEDITERRANEE)

WHO SPA- 21-C T. FELIU MENDEZ HEALTH AND SOCIAL SECURITY DEPARTMENT, TERRITORIAL DELEGATION OF TARRAGONA		82: 83:
	TDTAR	84:
STUDY OF METHODS IN MICROBIOLOGICAL ANALYSIS OF SEAWATERFOR FAECAL STREPTOCOCCI		85: 86: 2000 87:COM 88:

WHO YUG- 67-C N. KRSTULOVIC INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT		82: 83:
	IOFSP	84:
COMPARISON OF FAECAL COLIFORM LEVELS IN MUSSEL FLESH AND FLESH/INTERVALVULAR FLUID		85: 86: 3000 87:COM 88:

ACTIVITY D (EPIDEMIOLOGICAL STUDIES RELATED TO ENVIRONMENTAL QUALITY CRITERIA)
ACTIVITE D (ETUDES EPIDEMMIOLOGIQUES RELATIVES AUX CRITERES DE QUALITE DE L'ENVIRONNEMENT)

WHO GRE- 8-D J. A. PAPADAKIS ATHENS SCHOOL OF HYGIENE, ATHENS		82: 83: 5000
	ASHAT	84: 5500
EVALUATION OF HEALTH RISK AT DIFFERENT BACTERIOLOGICAL GRADING OF SEAWATER. RELATION BETWEEN DENSITIES OF INDICATOR ORGANISMS AND MICROBIAL PATHOGENS IN SEAWATER		85:NIL 86: 5000 87:COM 88:

WHO GRE- 9-D V. KRIKELIS INSTITUTE PASTEUR, ATHENS		82: 83:
	IPAAT	84: 5000
RESEARCH OF ENTERIC VIRUSES IN AQUATIC ENVIRONMENTS (SEWAGE EFFLUENTS, COASTAL SEAWATERS, FRESH WATERS)		85: 5000 86:NIL 87:COM 88:

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

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ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

WHO GRE- 11-D P. VLACHOS (FOR 1985 SEE UNEP/GRE-11Z) 82:
POISON CONTROL CENTRE, CHILDREN'S HOSPITAL "P.A. KYRIAKOU", ATHENS 83:
CHHOA 84:
EPIDEMIOLOGY AND THERAPEUTIC METHODS OF JELLYFISH POISONING IN GREECE 85:
86: 500
87:COM
88:

WHO GRE- 12-D S. K. MASTRONICOLIS (FOR 1985 SEE UNEP GRE/12Z) 82:
SCHOOL OF CHEMISTRY, UNIVERSITY OF ATHENS, ATHENS 83:
UATSC 84:
ISOLATION AND IDENTIFICATION OF NEW MOLECULES PHOSPHONOLIPIDS IN JELLYFISH 85:
86: 500
87:COM
88:

FAO ITA- 38-D R. CAPELLI 82:
ISTITUTO DI CHIMICA GENERALE, UNIVERSITA DI GENOVA, GENOVA 83:
UGECG 84: 6500
DETERMINATION DU MERCURE TOTAL, DE METHYLMERCURE ET DE SELENIUM DANS LES 85:NIL
ORGANISMES MARINS DE CONSOMMATION AFIN D'ETUDIER LEUR CORRELATION 86:NIL
87:COM
88:

WHO ITA- 46-D R. DELLA LOGGIA (FOR 1985 SEE UNEP ITA/46Z) 82:
ISTITUTO DI FARMACOLOGIA E FARMACOGNOSIA, UNIVERSITA DI TRIESTE, TRIESTE 83:
UTRFF 84:
THE POTENTIAL TOXICITY OF BLOOMS IN RELATION TO THEIR BIOCHEMICAL COMPOSITION 85:
86: 1500
87:COM
88:

WHO ITA- 47-D C. SCARPA (FOR 1985 SEE UNEP ITA/47Z) 82:
ISTITUTO DI CLINICA DERMATOLOGICA, UNIVERSITA DI TRIESTE, TRIESTE 83:
UTRCD 84:
ANTITODES FOR SKIN INJURIES INFLICTED ON HUMANS BY PELAGIA NOCTILUCA 85:NIL
86: 1500
87:COM
88:

WHO YUG- 35-D Z. MARETIC (FOR 1985 SEE UNEP YUG/35Z) 82:
MEDICAL CENTRE, PULA 83:
MCPUL 84:
PELAGIA NOCTILUCA - HUMAN HEALTH ASPECTS 85:
86: 500
87:COM
88:

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

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ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY F (RESEARCH ON OCEANOGRAPHIC PROCESSES)
ACTIVITE F (RECHERCHE SUR LES PROCESSUS OCEANOGRAPHIQUES)

IOC GRE- 1-F J. GANOULIS
SCHOOL OF TECHNOLOGY, ARISTOTELIAN UNIVERSITY OF THESSALONIKI, THESSALONIKI
UTHST

DEVELOPMENT OF MATHEMATICAL MODELS FOR HORIZONTAL TRANSPORT OF POLLUTANTS IN COASTAL AREAS OF THE MEDITERRANEAN SEA

82:
83:
84:
85: 3400
86:NIL
87:COM
88:

IOC ITA- 12-F P. MALANOTTE-RIZZOLI
ISTITUTO PER LO STUDIO DELLA DINAMICA DELLE GRANDI MASSE, VENEZIA
GMVEN

MODELLING OF CIRCULATION PROCESSES IN THE NORTHERN ADRIATIC AND THEIR INFLUENCE ON THE DISTRIBUTION OF POLLUTANTS CONSIDERED AS PASSIVE SCALARS

82:
83:
84:NIL
85: 6000
86:NIL
87:COM
88:

IOC TUR- 1-F U. UNLUATA
MIDDLE EAST TECHNICAL UNIVERSITY, ERDEMLI-ICEL
UMETE

OCEANOGRAPHIC PROCESSES IN THE NORTHEASTERN LEVANTINE COASTAL WATERS

82:
83:
84:
85: 7000
86:NIL
87:COM
88:

IOC YUG- 6-F M. GACIC
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT
IOFSP

LOW-FREQUENCY CURRENT FIELD OSCILLATIONS IN THE COASTAL ZONE OF THE CENTRAL ADRIATIC

82:
83:
84: 3000
85: 8000
86: 4000
87:COM
88:

IOC YUG- 36-F M. ZORE-ARMANDA
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT
IOFSP

TURBIDITY TRANSPORT BY RESIDUAL CURRENTS

82:
83:
84:
85: 5000
86:NIL
87:COM
88:

ACTIVITY G (RESEARCH ON THE TOXICITY, PERSISTENCE, BIOACCUMULATION, CARCINOGENICITY AND MUTAGENICITY OF MARINE POLLUTANTS)
ACTIVITE G (RECHERCCHES SUR LA TOXICITE, LA PERSISTANCE, LA BIOACCUMULATION, LA CANCEROGENICITY ET LA MUTAGENICITE DES POLLLUANTS DE LA MER)

FAO GRE- 26-G A. HARITOS
ZOOLOGICAL LABORATORY, UNIVERSITY OF ATHENS, ATHENS
UATZO

STUDY OF THE RESPONSES OF MARINE ORGANISMS TO POLLUTANTS AT THE LEVEL OF FUNCTIONAL PROTEINS

82:
83:
84: 4000
85: 3000
86: 2000
87:COM
88:

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED ACHEVE NAC: NOT ACCEPTED NON ACCEPTE UND: UNDER NEGOTIATION EN COURS DE NEGOC. WIT: WITHDRAWN RETIRE NIL: NO ASSISTANCE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

FAO GRE- 32-G A. HARITOS ZOOLOGICAL LABORATORY, UNIVERSITY OF ATHENS, ATHENS STUDY OF THE EFFECT OF HEAVY METALS ON POLYPEPTIDES IN FISH AND CRUSTACEAN SPECIES BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY	UATZO	82: 83: 84: 85: 4500 86: 2000 87:COM 88:
FAO ISR- 9-G E. NEVO INSTITUTE OF EVOLUTION, UNIVERSITY OF HAIFA *COMPLEX POLLUTION EFFECTS OF TWO HEAVY METALS (MERCURY AND CADMIUM) ON THE* GENETIC STRUCTURE OF MARINE ORGANISMS	UHAIE	82: 83: 84: 5000 85: 4000 86: 3000 87:COM 88:
FAO ISR- 10-G H. HORNUNG ISRAEL OCEANOGRAPHIC AND LIMNOLOGICAL RESEARCH INSTITUTE, HAIFA BIOACCUMULATION OF MERCURY AND ITS DISTRIBUTION IN VARIOUS ORGANS OF SOME SHORE FISH OFF THE MEDITERRANEAN SEACOAST	IOLRI	82: 83: 84: 4000 85: 4000 86: 2000 87:COM 88:
FAO ITA- 39-G A. RENZONI DIPARTIMENTO DI BIOLOGIA AMBIENTALE, UNIVERSITA DI SIENA, SIENA CONTAMINANTS IN RESIDENT AND MIGRATORY BIRDS IN THE EASTERN MEDITERRANEAN FLYWAY	USIBA	82: 83: 84: 2000 85: 2000 86:NIL 87:COM 88:
FAO TUR- 5-G H. BAGCI DEPT. OF BIOLOGICAL SCIENCES, MIDDLE EAST TECHNICAL UNIV., ANKARA 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 CARCINOGENICITY	UMEBA	82: 83: 6500 84: 2000 85:NIL 86:NIL 87:COM 88:

ACTIVITY I (POLLUTION-INDUCED ECOSYSTEMS MODIFICATIONS)
ACTIVITE I (MODIFICATION DES ECOSYSTEMES PAR LA POLLUTION)

FAO GRE- 38-I I. SIOKOU-FRANGOU NATIONAL CENTRE FOR MARINE RESEARCH, ATHENS *ETUDE DE L'IMPACT DE LA POLLUTION SUR LE ZOOPLANCTON DU GOLFE SARONIKOS* (MER EGEE, GRECE)	NCMRA	82: 83: 84: 85: 86: 3000 87:COM 88:

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

FAO LEB- 2-I N. M. KHAIRALLAH		82:
MARINE RESEARCH CENTRE, BEIRUT		83:
	MRCBE	84:
POLLUTION-INDUCED ECOSYSTEMS MODIFICATIONS		85: 3000
		86: 2000
		87:COM
		88:

ACTIVITY K (BIOGEOCHEMICAL CYCLES OF SPECIFIC POLLUTANTS)
ACTIVITE K (CYCLE BIOGEOCHIMIQUE DE CERTAINS POLLUANTS)

FAO ISR- 11-K H. HORNUNG		82:
ISRAEL OCEANOGRAPHIC AND LIMNOLOGICAL RESEARCH INSTITUTE, HAIFA		83:
	IOLRI	84: 3000
SOME ASPECTS OF THE BIOGEOCHEMICAL CYCLE OF MERCURY IN A POLLUTED AREA OFF THE ISRAEL MEDITERRANEAN COAST		85:NIL
		86: 2000
		87:COM
		88:

ACTIVITY L (POLLUTANT-TRANSFER PROCESSES)
ACTIVITE L (PROCESSUS DE TRANSFERT DES POLLUANTS)

IOC FRA- 30-L G. CAUWET		82:
LABORATOIRE DE SEDIMENTOLOGIE ET GEOCHIMIE MARINES, UNIVERSITE DE PERPIGNAN		83:
	UPESM	84:NIL
PROCESSUS DE TRANSFERT DES POLLUANTS. ROLE DE LA DYNAMIQUE SEDIMENTAIRE EN MILIEU STRATIFIE		85: 5000
		86:NIL
		87:COM
		88:

IOC GRE- 4-L M. J. SCOULLOS		82:
DEPARTMENT OF CHEMISTRY, UNIVERSITY OF ATHENS, ATHENS		83:
	UATDC	84: 3500
STUDY OF THE TRANSPORT OF PARTICLES IN GREEK ESTUARIES		85:NIL
		86:NIL
		87:COM
		88:

IAEA ITA- 14-L L. TASSI-PELATI SEE ALSO ITA/76-K)		82:
ISTITUTO DI ZOOLOGIA, UNIVERSITA DI PARMA, PARMA		83:
	UPRIZ	84: 4000
STUDY ON THE 137 CS AND 239 PU FLUXES INTO MEDITERRANEAN MARINE ENVIRONMENT		85:NIL
		86: 2000
		87:COM
		88:

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

WMO ITA- 17-L A. PALUMBO
OSSERVATORIO METEOROLOGICO, UNIVERSITA DI NAPOLI, NAPOLI
UNAOM
POLLUTANT TRANSPORT MODELS AT THE AIR-SEA INTERFACE

82:
83: 4520
84:NIL
85: 4000
86:NIL
87:COM
88:

ACTIVITY Z (JELLYFISH PROGRAMME)
ACTIVITE Z (PROGRAMME RELATIF AUX MEDUSES)

UNEP FRA- 11-Z J. GOY
ICHTYOLOGIE GENERALE ET APPLIQUEE, MUSEUM NATIONAL D'HISTOIRE NATURELLE, PARIS
MNHNP
MODELISATION DES FLORAISONS DE MEDUSES. UNE ZONE D'EUTROPHISATION EN LIGURE

82:
83:
84:
85: 9300
86: 4000
87:COM
88:

UNEP FRA- 12-Z P. BERNARD
INST. NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE, UNITE INSERM, NICE
INSER
SURVEILLANCE DES PROLIFERATIONS DE MEDUSES URTICANTES DURANT LA PERIODE ESTIVALE 1985 SUR LE LITTORAL DE LA REGION PROVENCE-ALPES- COTE D'AZUR (FRANCE)

82:
83:
84:
85:NIL
86: 2000
87:COM
88:

UNEP GRE- 11-Z P. VLACHOS (FOR 1986 SEE WHO GRE/11-D)
POISON CONTROL CENTRE, CHILDREN'S HOSPITAL "P.A. KYRIAKOU", ATHENS
KYHAT
EPIDEMIOLOGY AND THERAPEUTIC METHODS OF JELLYFISH. POISONING IN GREECE

82:
83:
84:
85: 2500
86:NIL
87:COM
88:

UNEP GRE- 12-Z S. K. MASTRONICOLIS (FOR 1986 SEE WHO GRE/12-D)
SCHOOL OF CHEMISTRY, UNIVERSITY OF ATHENS, ATHENS
UATSC
ISOLATION AND IDENTIFICATION OF NEW MOLECULES PHOSPHONOLIPIDS IN JELLYFISH

82:
83:
84:
85: 4500
86:NIL
87:COM
88:

UNEP GRE- 24-Z E. PAPATHANASSIOU (COMBINED WITH GRE/28)
NATIONAL CENTRE FOR MARINE RESEARCH, ATHENS
NCMRA
STUDIES ON THE ECOLOGY AND BIOLOGY OF JELLYFISH IN GREECE

82:
83:
84:
85: 12150
86: 2500
87:COM
88:

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

UNEP GRE- 25-Z J. CASTRITSI-CATHARIOS
ZOOLOGICAL LABORATORY, UNIVERSITY OF ATHENS, ATHENS

DISTRIBUTION QUANTITATIVE ET QUALITATIVE DES MEDUSES COMMUNES DANS LES ZONES PROCHES DE LA COTE DES ILES: HYDRA, POROS ET AUSSI AU N.E. DU GOLFE DE KORINTHE

UATZO

82:
83:
84:
85: 3800
86: 1000
87:COM
88:

UNEP GRE- 28-Z A. P. GRIMANIS (COMBINED WITH GRE/24)
CHEMISTRY DEPARTMENT, "DEMOCRITOS" NUCLEAR RESEARCH CENTRE, ATHENS

USE OF ISOTOPES TO IDENTIFY THE FOOD SOURCES OF JELLYFISH BLOOMS: NATURAL ECOSYSTEMS OR SEWAGE EFFLUENTS

DEMAT

82:
83:
84:
85:NIL
86:NIL
87:COM
88:

UNEP ITA- 42-Z L. ROTTINI-SANDRINI
LABORATORY OF MARINE BIOLOGY - CIMAM, TRIESTE

MONITORAGE DES MEDUSES EN ADRIATIQUE ET DOMMAGE A LA PECHE

CIMAM

82:
83:
84:
85: 6000
86:NIL
87:COM
88:

UNEP ITA- 43-Z L. ROTTINI-SANDRINI
LABORATORY OF MARINE BIOLOGY - CIMAM, TRIESTE

ETUDE ECOLOGIQUE EXPERIMENTALE DE Pelagia noctiluca

CIMAM

82:
83:
84:
85:NIL
86:NIL
87:COM
88:

UNEP ITA- 44-Z F. STRAVISI
ISTITUTO TALASSOGRAFICO DI TRIESTE, TRIESTE

WATER CIRCULATION AND TRANSPORT IN NE ADRIATIC

ITTRI

82:
83:
84:
85:NAC
86:NIL
87:COM
88:

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED ACHEVE
NAC: NOT ACCEPTED NON ACCEPTE
UND: UNDER NEGOTIATION EN COURS DE NEGOC.
WIT: WITHDRAWN RETIRE
NIL: NO ASSISTANCE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

UNEP ITA- 45-Z F. STRAVISI
ISTITUTO TALASSOGRAFICO DI TRIESTE, TRIESTE

ITTRI

STUDY ON THE CLIMATIC VARIATIONS IN NORTHERN ADRIATIC DURING THE LAST CENTURY AND THEIR ROLE ON MARINE PHENOMENA

82:
83:
84:
85:NAC
86:NIL
87:COM
88:

UNEP ITA- 46-Z R. DELLA LOGGIA (FOR 1986 SEE WHO ITA/46-D)
ISTITUTO DI FARMACOLOGIA E FARMACOGNOSIA, UNIVERSITA DI TRIESTE, TRIESTE

UTRFF

INDIVIDUATION AND TOXICOLOGICAL EVALUATION OF THE DERMATOTOXIC PRINCIPLES OF PELAGIA NOCTILUCA AND OTHER MEDUSAE

82:
83:
84:
85:NIL
86:NIL
87:COM
88:

UNEP ITA- 47-Z C. SCARPA (FOR 1986 SEE WHO ITA/47-D)
ISTITUTO DI CLINICA DERMATOLOGICA, UNIVERSITA DI TRIESTE, TRIESTE

UTRCD

ANTITODES FOR SKIN INJURIES INFLICTED ON HUMANS BY PELAGIA NOCTILUCA

82:
83:
84:
85:NIL
86:NIL
87:COM
88:

UNEP ITA- 48-Z A. CARLI
ISTITUTO DI SCIENZE AMBIENTALI MARINE, UNIVERSITA DI GENOVA, GENOVA

UGEAM

SAMPLE-MONITORING OF PELAGIA NOCTILUCA IN THE LIGURIAN SEA: BIOLOGICAL AND ECOLOGICAL ASPECTS

82:
83:
84:
85:NIL
86: 1500
87:COM
88:

UNEP ITA- 49-Z G. C. PAPPALARDO
DIPARTIMENTO DI SCIENZE CHIMICHE, UNIVERSITA DI CATANIA, CATANIA

UCASC

MULTI-ELEMENT ANALYSIS OF MEDITERRANEAN SEAWATERS AND ASSESSMENT OF ENVIRONMENTAL QUALITY IN RELATION TO JELLYFISH SWARMINGS, AND STRUCTURE CHARACTERIZATION OF CHEMICAL COMPONENTS OF VENOM PRODUCED BY PELAGIA NOCTILUCA

82:
83:
84:
85:NIL
86: 1500
87:COM
88:

UNEP ITA- 50-Z A. SALLEO
ISTITUTO DI FISIOLOGIA GENERALE, UNIVERSITA DI MESSINA, MESSINA

UMSFG

DISCHARGE MECHANISM OF THE NEMATOCYSTS OF PELAGIA NOCTILUCA

82:
83:
84:
85:NIL
86: 1500
87:COM
88:

UNEP ITA- 51-Z A. LONGINELLI
LABORATORY OF MARINE BIOLOGY - CIMAM, TRIESTE

CIMAM

STABLE ISOTOPE RESEARCH (18 O/16 O, D/H AND 13 C/12 C) AS A NEW TOOL FOR STUDYING THE RELATIONSHIPS BETWEEN SOME ENVIRONMENTAL PARAMETERS AND THE BEHAVIOUR OF JELLYFISH

82:
83:
84:
85:NIL
86:NIL
87:COM
88:

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

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EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

UNEP ITA- 55-I F. BOERO ISTITUTO DI ZOOLOGIA, UNIVERSITA DI GENOVA, GENOVA PROJECT ON JELLYFISH ON THE MEDITERRANEAN SEA	UGEZO	82: 83: 84: 85:NIL 86: 1500 87:COM 88:
UNEP ITA- 58-I L. SCALERA-LIACI ISTITUTO DI ZOOLOGIA E ANATOMIA COMPARATA, UNIVERSITA DI BARI, BARI JELLYFISH IN THE MEDITERRANEAN SEA	UBRIZ	82: 83: 84: 85:NIL 86: 1500 87:COM 88:
UNEP MAL- 3-I V. AXIAK BIOLOGY SECTION, MATHS AND SCIENCES DEPT., UNIVERSITY OF MALTA MONITORING OF JELLYFISH SWARMINGS IN THE COASTAL WATERS OF MALTA	UMLBS	82: 83: 84: 85: 6000 86: 2000 87:COM 88:
UNEP TUR- 12-I F. BINGEL MIDDLE EAST TECHNICAL UNIVERSITY, ERDEMLI-ICEL PROJECT ON JELLYFISH IN THE MEDITERRANEAN SEA. JELLYFISH MONITORING PROGRAMME FOR THE EASTERN MEDITERRANEAN COAST OF TURKEY	UMETE	82: 83: 84: 85: 86: 3000 87:COM 88:
UNEP YUG- 30-I A. BENOVIC BIOLOGICAL INSTITUTE, DUBROVNIK INVESTIGATION OF JELLYFISH (MEDUSAE) IN THE SOUTHERN ADRIATIC	BIDUB	82: 83: 84: 85: 7450 86: 2000 87:COM 88:
UNEP YUG- 32-I T. LEGOVIC CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB SWARMING AND TRANSPORT OF PELAGIA NOCTILUCA IN THE ADRIATIC SEA	CMRZA	82: 83: 84: 85: 4000 86: 1500 87:COM 88:
UNEP YUG- 35-I Z. MARETIC (FOR 1986 SEE WHO YUG/35-D) MEDICAL CENTER, PULA PELAGIA NOCTILUCA - HUMAN HEALTH ASPECTS	MCPUL	82: 83: 84: 85: 600 86:NIL 87:COM 88:

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

UNEP YUG- 39-I D. ZAVODNIK CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ROVINJ MONITORING OF JELLYFISH PELAGIA NOCTILUCA ALONG THE WEST ISTRIAN RIVIERA (NORTHERN ADRIATIC)	CMRRO	82: 83: 84: 85: 7500 86:NIL 87:COM 88:
UNEP YUG- 42-I T. VUCETIC INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT COMPARATIVE STUDY OF THE UNUSUAL APPEARANCE OF PELAGIA AND CHANGES OF THE ENVIRONMENTAL FACTORS	IOFSP	82: 83: 84: 85: 2000 86: 1000 87:COM 88:
UNEP YUG- 45-I A. MALEJ MARINE RESEARCH AND TRAINING CENTRE, PIRAN RATE OF METABOLISM OF JELLYFISH AS RELATED TO BODYWEIGHT, CHEMICAL COMPOSITION AND TEMPERATURE	MRTCP	82: 83: 84: 85: 5850 86: 3000 87:COM 88:

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

c) 1987 and 1988 projects under negotiation

ACTIVITY A (DEVELOPMENT AND TESTING OF SAMPLING AND ANALYTICAL TECHNIQUES FOR MONITORING OF MARINE POLLUTANTS)
ACTIVITE A (MISE AU POINT ET ESSAI DE TECHNIQUES D'ECHANTILLONNAGE ET D'ANALYSE POUR LA SURVEILLANCE DES POLLUANTS DE LA MER)

IOC ALG- 7-A K. ABDEDDAIM		82:
INSTITUT DES SCIENCES DE LA NATURE, U.S.T.H.B., ALGER		83:
	USTHB	84:
RECHERCHE ET DEVELOPPEMENT DE TECHNIQUES D'ECHANTILLONNAGE ET D'ANALYSE		85:
D'HYDROCARBURES PETROLIERS ET DERIVES DE L'INDUSTRIE PETROCHIMIQUE DISSOUS		86:
OU DISPERSES EN MILIEU MARIN		87:
		88:UND
IAEA YUG- 66-A J. FAGANELI		82:
MARINE RESEARCH AND TRAINING CENTRE, PIRAN		83:
	MRTCP	84:
INPUT AND TRANSFORMATIONS OF ALLOCHTONOUS ORGANIC MATTER IN THE COASTAL WATERS		85:UND
		86:UND
		87:UND
		88:UND

ACTIVITY C (FORMULATION OF THE SCIENTIFIC RATIONALE FOR MEDITERRANEAN ENVIRONMENTAL QUALITY CRITERIA)
ACTIVITE C (ELABORATION DES FONDEMENTS SCIENTIFIQUES DES CRITERES DE QUALITE DE L'ENVIRONNEMENT EN MEDITERRANEE)

WHO ITA-109-C L. VOLTERRA		82:
ISTITUTO SUPERIORE DI SANITA, ROMA		83:
	ISUPR	84:
HYGIENIC QUALITY OF SCRAPER-FEEDERS MOLLUSCS		85:
		86:
		87:
		88:UND

ACTIVITY D (EPIDEMIOLOGICAL STUDIES RELATED TO ENVIRONMENTAL QUALITY CRITERIA)
ACTIVITE D (ETUDES EPIDEMIOLOGIQUES RELATIVES AUX CRITERES DE QUALITE DE L'ENVIRONNEMENT)

WHO EGY- 17-D R. B. NESSIM		82:
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, ALEXANDRIA		83:
	IOFAL	84:
WATER QUALITY OF ALEXANDRIA SWIMMING BEACHES		85:
		86:
		87:
		88:UND

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

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ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

WHO ITA- 62-D S. MARTELLA		82:
DEPARTMENT OF ANIMAL BIOLOGY, UNIVERSITY OF MESSINA, MESSINA		83:
	UMSAB	84:
INVESTIGATION ON THE OCCURRENCE OF METHYLMERCURY IN SAMPLING FROM A HUMAN		85:
POPULATION IN WHICH ARE PREVAILING FISHERMEN (GANZIRRI VILLAGE OF MESSINA).		86:UND
POSSIBLE CORRELATIONS WITH THE FEEDING DIET		87:UND
		88:UND
FAO ITA- 78-D N. CRESCENTI		82:
DEPARTMENT OF ANIMAL BIOLOGY, UNIVERSITY OF MESSINA, MESSINA		83:
	UMSAB	84:
INVESTIGATION ON THE METHYLMERCURY OCCURING IN LEPIDOPUSCAUDATUS EUPHRASEN		85:
COMING FROM THE MESSINA STRAITS		86:UND
		87:UND
		88:UND
WHO MOR- 7-D N. BENMANSOUR		82:
INSTITUT NATIONAL D'HYGIENE, RABAT		83:
	INHRA	84:
RECHERCHE ET QUANTIFICATION DES AGENTS. PATHOGENES PRESENTS DANS LES EAUX		85:
DE BAIGNADE. COTIERES DU LITTORAL MEDITERRANEEN		86:
		87:
		88:UND
WHO SPA- 23-D J. IZQUIERDO		82:
LABORATORIO MUNICIPAL, BARCELONA		83:
	LMBAR	84:
CORRELATION OF FUNGAL DENSITY IN R ECREATIONAL BEACHES WITH HEALTH EFFECTS		85:
		86:
		87:
		88:UND

ACTIVITY E (GUIDELINES AND CRITERIA FOR THE APPLICATION OF THE LAND-BASED SOURCES PROTOCOL)
ACTIVITE E (DIRECTIVES ET CRITERES POUR L'APPLICATION DU PROTOCOLE RELATIF A LA POLLUTION D'ORIGINE TELLURIQUE)

WHO SPA- 27-E J. F. MARINO		82:
ESCUELA NACIONAL DE SANIDAD, CIUDAD UNIVERSITARIA, MADRID		83:
	ENSMA	84:
DEVELOPING A COMPUTING PACKAGE CAPABLE TO PROCESS ENVIRONMENTAL DATA AND		85:
GRAPHIC GEOGRAPHICAL REPRESENTATION FOR THE MEDITERRANEAN AREA		86:
		87:
		88:UND

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED ACHEVE NAC: NOT ACCEPTED NON ACCEPTE UND: UNDER NEGOTIATION EN COURS DE NEGOC. WIT: WITHDRAWN RETIRE NIL: NO ASSISTANCE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

ACTIVITY F (RESEARCH ON OCEANOGRAPHIC PROCESSES)
ACTIVITE F (RECHERCHE SUR LES PROCESSUS OCEANOGRAPHIQUES)

IOC EGY- 12-F M. A. SAID
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, ALEXANDRIA — IOFAL

MODELLING OF CIRCULATION PROCESSES IN THE EGYPTIAN MEDITERRANEAN SHELF WATER OFF ALEXANDRIA COAST, AND THEIR INFLUENCE ON THE TRANSPORT OF POLLUTANTS IN THE NEAR-SHORE AREA

82:
83:
84:
85:
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88:UND

IOC ISR- 32-F A. GOLIK
ISRAEL OCEANOGRAPHIC AND LIMNOLOGICAL RESEARCH INSTITUTE, HAIFA — IOLRI

ASSESSMENT OF LITTER QUANTITY AND BEHAVIOUR ON THE ISRAELI BEACHES

82:
83:
84:
85:
86:
87:
88:UND

IOC ITA-108-F A. BERGAMASCO
ISTITUTO PER LO STUDIO DELLA DINAMICA DELLE GRANDI MASSE, VENEZIA — GMVEN

MODELLING OF CIRCULATION PROCESSES WITH PASSIVE TRACERS IN THE NORTHERN ADRIATIC SEA

82:
83:
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85:
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87:
88:UND

IOC ITA-112-F F. STRAVISI
LABORATORY OF MARINE BIOLOGY - CIMAM, TRIESTE — CIMAM

SURFACE TRANSPORT IN THE GULF OF TRIESTE - "STRAGUTS"

82:
83:
84:
85:
86:
87:
88:UND

IOC SPA- 29-F M. G. MARINO
ESCUELA NACIONAL DE SANIDAD, CIUDAD UNIVERSITARIA, MADRID — ENSMA

EVALUATION OF FLOATING PERSISTENT SYNTHETIC MATERIALS IN NORTHERN WESTERN MEDITERRANEAN. ANALYSIS OF THE EFFECT OF THE IMPLEMENTATION OF THE PROTOCOL FOR LAND-BASED SOURCES

82:
83:
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88:UND

ACTIVITY G (RESEARCH ON THE TOXICITY, PERSISTENCE, BIOACCUMULATION, CARCINOGENICITY AND MUTAGENICITY OF MARINE POLLUTANTS)
ACTIVITE G (RECHERCCHES SUR LA TOXICITE, LA PERSISTANCE, LA BIOACCUMULATION, LA CANCEROGENICITY ET LA MUTAGENICITE DES POLLLUANTS DE LA MER)

FAO EGY- 15-G S. A. SOLIMAN
FACULTY OF AGRICULTURE, UNIVERSITY OF ALEXANDRIA, ALEXANDRIA — UALFA

BIOCONCENTRATION OF ORGANIC AND INORGANIC POLLUTANTS IN THE MEDITERRANEAN SEA BY DIFFERENT AQUATIC ORGANISMS

82:
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88:UND

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED ACHEVE — NAC: NOT ACCEPTED NON ACCEPTE — UND: UNDER NEGOTIATION EN COURS DE NEGOC. — WIT: WITHDRAWN RETIRE — NIL: NO ASSISTANCE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

FAO FRA- 42-G M. LAFAURIE FACULTE DE MEDECINE, UNIVERSITE DE NICE, NICE UNIFM ACTIVITES DE SYSTEMES DE BIOPROTECTION D'ORGANISMES MARINS REPRESENTATIFS D'ECOSYSTEMES COTIERS EN MER MEDITERRANEE	82: 83: 84: 85: 86: 87: 88:UND
FAO GRE- 55-G A. A. HARITOS ZOOLOGICAL LABORATORY, UNIVERSITY OF ATHENS, ATHENS UATZO STUDY OF QUALITATIVE AND QUANTITATIVE EFFECTS OF SELENIUM, ARSENIC AND CHROMIUM ON PEPTIDES AND PROTEINS OF CRUSTACEANS BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY ANE ELECTROPHORETIC TECHNIQUES	82: 83: 84: 85: 86: 87: 88:UND
WHO ISR- 27-G E. NEVO INSTITUTE OF EVOLUTION, UNIVERSITY OF HAIFA UHAIE THE EFFECTS OF DETERGENT POLLUTION ON THE GENETIC STRUCTURE OF MARINE GASTROPODS	82: 83: 84: 85: 86: 87: 88:UND
WHO ISR- 28-G E. NEVO INSTITUTE OF EVOLUTION, UNIVERSITY OF HAIFA UHAIE THE EFFECTS OF CRUDE OIL-SURFACTANT MIXTURES ON THE GENETIC STRUCTURE OF MARINE GASTROPODS	82: 83: 84: 85: 86: 87: 88:UND
WHO ITA-116-G C. BOLOGNESI NATIONAL INSTITUTE FOR CANCER RESEARCH - IST, GENOVA ICRGE INVESTIGATION ON TOPOGRAPHICAL DISTRIBUTION OF FISH TUMORS AS INDICATORS OF ENVIRONMENTAL PATHOLOGY	82: 83: 84: 85: 86: 87: 88:UND

ACTIVITY H (EUTROPHICATION AND CONCOMITANT PLANKTON BLOOMS)
ACTIVITE H (EUTROPHISATION ET FLORAISONS CONCOMITANTES DE PLANCTON)

FAO ITA-111-H A. CARLI ISTITUTO DI SCIENZE AMBIENTALI MARINE, UNIVERSITA DI GENOVA, GENOVA UGEAM STUDY OF PLANKTON POPULATIONS IN A LIGURIAN SEA ZONE, RELATING TO THE EUTROPHICATION STATE OF THE WATER	82: 83: 84: 85: 86: 87: 88:UND

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

FAO TUN- 5-H M. BELKHIR		82:
INSTOP, SALAMMBO		83:
	INSTP	84:
BIOLOGIE DES EAUX DECOLOREES		85:
		86:
		87:UND
		88:UND

ACTIVITY K (BIOGEOCHEMICAL CYCLES OF SPECIFIC POLLUTANTS)
ACTIVITE K (CYCLE BIOGEOCHIMIQUE DE CERTAINS POLLUANTS)

IAEA ITA- 76-K L. TASSI PELATI (SEE ALSO ITA/14-L)		82:
ISTITUTO DI ZOOLOGIA, UNIVERSITA DI PARMA, PARMA		83:
	UPRIZ	84:NIL
BIOLOGICAL TRANSFER OF RADIONUCLIDES IN THE SEA		85:NIL
		86:NIL
		87:NIL
		88:UND

IAEA YUG- 74-K M. HORVAT		82:
INSTITUTE JOSEF STEFAN, UNIVERSITY E. KARDELJ, LJUBLJANA		83:
	IJSLJ	84:
ESTABLISHEMENT OF MERCURY LEVELS IN THE ADRIATIC SEA		85:
		86:
		87:UND
		88:UND

IAEA YUG- 85-K B. COSOVIC		82:
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB		83:
	CMRZA	84:
OCCURRENCE, FATE AND EFFECTS OF SYNTHETIC SURFACTANTS IN THE MARINE ENVIRONMENT		85:
		86:
		87:
		88:UND

ACTIVITY L (POLLUTANT-TRANSFER PROCESSES)
ACTIVITE L (PROCESSUS DE TRANSFERT DES POLLUANTS)

IAEA EGY- 16-L A. A. MOUSSA		82:
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, ALEXANDRIA		83:
	IOFAL	84:
GEOCHEMICAL INTERACTION BETWEEN WASTE MATERIALS AND MARINE ENVIRONMENT		85:
		86:
		87:
		88:UND

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

IOC FRA- 43-L M. AUBERT		82:
CENTRE D'ETUDES ET DE RECHERCHES DE BIOLOGIE ET D'OCEANOGRAPHIE MEDICALE, NICE		83:
	CRBOM	84:
ETUDE DE TRANSFERTS DE POLLUTANTS ENTRE LA MER TYRRHENIENNE ET LA MER IONIENNE PAR LE DETROIT DE MESSINE		85:
		86:
		87:
		88:UND
WMO GRE- 56-L N. A. KATSANOS		82:
PHYSICAL CHEMISTRY LABORATORY, UNIVERSITY OF PATRAS, PATRAS		83:
	UPAPC	84:
MEASUREMENT OF MASS TRANSFER COEFFICIENTS OF POLLUTANTS ACROSS THE ATMOSPHERIC AIR-SEA BOUNDARY		85:
		86:
		87:
		88:UND
WMO ISR- 26-L U. DAYAN		82:
HEBREW UNIVERSITY OF JERUSALEM		83:
	UHBRE	84:
SEASONAL DISTRIBUTION OF THE MIXING DEPT. VALUES IN THE MEDITERRANEAN BASIN AS INPUT FOR A 3-D DYNAMICAL METEOROLOGICAL MODEL		85:
		86:
		87:
		88:UND
IAEA YUG- 65-L M. JURACIC		82:
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB		83:
	CMRZA	84:
POLLUTANT TRANSFER PROCESSES: THE ROLE OF SUSPENDED MATTER AND SEDIMENTS IN THE LAND-TO-SEA TRANSPORT IN A KARSTIC ESTUARY		85:
		86:UND
		87:UND
		88:UND
IOC YUG- 81-L V. ZUTIC		82:
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB		83:
	CMRZA	84:
POLLUTANT ACCUMULATION AT THE HALOCLINE OF MEDITERRANEAN STRATIFIED ESTUARIES		85:
		86:
		87:
		88:UND

THE FIGURES APPEARING ABOVE REPRESENT THE ANNUAL FINANCIAL ASSISTANCE IN US$
LES CHIFFRES FIGURANT CI-DESSOUS REPRESENTENT L'ASSISTANCE FINANCIERE ANNUELLE EN DOLLARS E.U.

COM: COMPLETED NAC: NOT ACCEPTED UND: UNDER NEGOTIATION WIT: WITHDRAWN NIL: NO ASSISTANCE
ACHEVE NON ACCEPTE EN COURS DE NEGOC. RETIRE PAS D'ASSISTANCE
EXT: EXTENSION UNDER NEGOTIATION - PROLONGATION EN COURS DE NEGOTIATION

a) Existing data reporting forms distributed in 1983

- Microbial pollution in seawater
- Heavy metals in marine organisms
- Halogenated hydrocarbons in marine organisms

Annex IV

a) Existing data reporting forms distributed in 1983

- Microbial pollution in seawater
- Heavy metals in marine organisms
- Halogenated hydrocarbons in marine organisms

b) Additional data reporting forms to be circulated and used for MED POL

- Tar on seashore
- Oil slicks and other floating pollutants
- Particulate petroleum residues (tar balls)
- Dissolved/dispersed hydrocarbons
- Heavy metals in marine sediments
- Chlorinated hydrocarbons in marine sediments

LONG TERM PROGRAMME FOR POLLUTION

MONITORING AND RESEARCH IN THE MEDITERRANEAN SEA

(MED POL-PHASE II)

UNITED NATIONS ENVIRONMENT PROGRAMME

Co-ordinating Unit
for the Mediterranean Action Plan

Place for sticker

LOG FORM B1 for reporting data on monitoring of MICROBIAL POLLUTION in SEA WATER

SAMPLING INFORMATION													BACTERIOLOGICAL AND COMPLEMENTARY INFORMATION						BASIC OCEANOGRAPHIC AND METEOROLOGICAL OBSERVATIONS					REFERENCE TO ANALYTICAL METHOD USED:
STATION NUMBER	DATE			TIME		LOCATION					DISTANCE FROM SHORE (m)	DEPTH BOTTOM (m)	DEPTH SAMPLING (m)	BACTERIAL INDICATOR	BACTERIAL COUNT (No/100ml)	TEMPERATURE (°C)	SALINITY ‰	OXYGEN $ml O_2/l$	WAVE HEIGHT (m)	WIND		SURFACE CURRENT		
	Day	Month	Year	Hour	Minute	LAT Degree	LAT Minute	LONG Degree	LONG Minute	E/W										Direction (d)	Speed m/sec	Direction (d)	Speed cm/sec	COMMENTS

PAGE /

LOG FORM B1 for reporting data on monitoring of MICROBIAL POLLUTION in SEA WATER

SAMPLING INFORMATION													BACTERIOLOGICAL AND COMPLEMENTARY INFORMATION						BASIC OCEANOGRAPHIC AND METEOROLOGICAL OBSERVATIONS					COMMENTS
STATION NUMBER	DATE			TIME		LOCATION					DISTANCE FROM SHORE (m)	DEPTH BOTTOM (m)	DEPTH SAMPLING (m)	BACTERIAL INDICATOR	COUNT BACTERIAL (No/100ml)	TEMPERATURE (°C)	SALINITY ‰	OXYGEN $ml O_2/l$	WAVE HEIGHT (m)	WIND		SURFACE CURRENT		
	Day	Month	Year	Hour	Minute	LAT Degree	LAT Minute	LONG Degree	LONG Minute	E/W										Direction (d)	Speed m/sec	Direction (d)	Speed cm/sec	

LONG TERM PROGRAMME FOR POLLUTION

MONITORING AND RESEARCH IN THE MEDITERRANEAN SEA

(MED POL-PHASE II)

UNITED NATIONS ENVIRONMENT PROGRAMME

Co-ordinating Unit
for the Mediterranean Action Plan

Place for sticker

LOG FORM B2 for reporting data on monitoring of HEAVY METALS in MARINE ORGANISMS

SAMPLING INFORMATION										BIOLOGICAL INFORMATION											ANALYTICAL INFORMATION					REFERENCE TO ANALYTICAL METHOD USED :
SAMPLE CODE	STATION NUMBER	DATE			LOCATION					SPECIES NAME	N_s	LENGTH			WEIGHT			SEX	AGE	TISSUE	DW/FW	ELEMENT	N_a	CONC. (µg/kg) fresh weight	St. dev.	
		Day	Month	Year	Lat Degree	Lat Minute	Long Degree	Long Minute	E/W			units	Av. lgth.	St. dev.	units	Av. wght.	St. dev.									COMMENTS

PAGE /

LOG FORM B2 for reporting data on monitoring of HEAVY METALS in MARINE ORGANISMS

SAMPLING INFORMATION										BIOLOGICAL INFORMATION											ANALYTICAL INFORMATION					COMMENTS
		DATE			LOCATION							LENGTH			WEIGHT											
					Lat		Long																			
SAMPLE CODE	STATION NUMBER	Day	Month	Year	Degrees	Minutes	Degrees	Minutes	E/W	SPECIES NAME	N_s	units	Av. lgth.	St. dev.	units	Av. wght.	St. dev.	SEX	AGE	TISSUE	DW/FW	ELEMENT	N_A	CONC. (μg/kg) fresh weight	St. dev.	

LONG TERM PROGRAMME FOR POLLUTION

MONITORING AND RESEARCH IN THE MEDITERRANEAN SEA

(MED POL-PHASE II)

UNITED NATIONS ENVIRONMENT PROGRAMME

Co-ordinating Unit
for the Mediterranean Action Plan

Place for sticker

LOG FORM B3 for reporting data on monitoring of HALOGENATED HYDROCARBONS in MARINE ORGANISMS

SAMPLING INFORMATION										BIOLOGICAL INFORMATION										ANALYTICAL INFORMATION						REFERENCE TO ANALYTICAL METHOD FOLLOWED.
SAMPLE CODE	STATION NUMBER	DATE			LOCATION					SPECIES NAME	N_a	LENGTH			WEIGHT			SEX	AGE	TISSUE	KOH	DM / FW	COMPOSITED	N_a	CONC. (µg/kg) fresh weight	St. dev.	
		Day	Month	Year	Lat Degree	Lat Minute	Long Degree	Long Minute	N/W			units	Av. lgth.	St. dev.	units	Av. wght.	St. dev.											COMMENTS

PAGE /

LOG FORM B3 for reporting data on monitoring of HALOGENATED HYDROCARBONS in MARINE ORGANISMS

SAMPLING INFORMATION											BIOLOGICAL INFORMATION								ANALYTICAL INFORMATION									COMMENTS
SAMPLE CODE	STATION NUMBER	DATE			LOCATION						SPECIES NAME	N_s	LENGTH			WEIGHT			SEX	AGE	TISSUE	EOM	DW / FW	COMPOUND	N_a	CONC. (µg/kg) fresh weight	St. dev.	
		Day	Month	Year	Lat Degree	Lat Minute	Long Degree	Long Minute	E/W				units	Av. lgth.	St. dev.	units	Av. wght.	St. dev.										

b) Additional data reporting forms to be circulated and used for MED POL

- Tar on seashore
- Oil slicks and other floating pollutants
- Particulate petroleum residues (tar balls)
- Dissolved/dispersed hydrocarbons
- Heavy metals in marine sediments
- Chlorinated hydrocarbons in marine sediments

LOG FORM

FOR

SAMPLING AND REPORTING TAR ON SEASHORE

COUNTRY	INSTITUTE	RESPONSIBLE INDIVIDUAL	INDIVIDUAL RECORDING	DATE OF PREVIOUS SAMPLING

LOCATION			DATE	LOW TIDE (LOCAL TIDE)	TIME OF COLLECT (LOCAL TIME)	PREVAILING WIND DURING SAMPLING PERIOD		LENGTH OF SHOREFRONT (m)	DISTANCE FROM WATERLINE TO END OF SAMPLING (m) (3)	SEASHORE SURFACE (4)	WT OF TAR (g)	REMARKS
BEACH NAME	LAT DEG/ MIN	LONG DEG/ MIN				Direction[1]	Speed[2]					

(1) Average during period preceeding sampling
(1) onshore
(2) offshore
(3) along shore

(2) Speed in m/sec
(1) very weak
(2) moderate
(3) strong

(3) Horizontal distance inland between waterline and end of sampling

(4) Seashore surface
(1) fine sand
(2) coarse sand
(3) pebbles
(4) rock slabs

OBSERVATION/PLATFORM HEIGHT ABOVE SEA LEVEL ______ Meters

IOC MARINE POLLUTION MONITORING SYSTEM (MARPOLMON)

LOG FOR OBSERVATION AND REPORTING OF OIL SLICKS AND OTHER FLOATING POLLUTANTS

PLATFORM/SHIP				COUNTRY	INSTITUTE/ORGANIZATION
TYPE	NAME	FLAG	RADIO CALL		

DATE/TIME										LOCATION									POLLUTION DATA				COVERAGE (1/10 N. Miles)		ENVIRONMENTAL DATA									Temp.		REMARKS
G.M.T.										QUAD	LAT.				LONG.										WIND					WAVE						
DAY		MO.		YEAR		HR.		MIN.			DEG.		MIN.		DEG.		MIN.						ALONG	ACROSS	UNIT	DIR.		SPEED		PER.		HT.				
Y	Y	M	M	J	J	G	G	g	g	Q_c	L_a	L_a	L_a	L_a	L_o	L_o	L_o	L_o	A	B	C	D	TRACK	TRACK	i	d	d	f	f	P_w	P_w	H_w	H_w	Air	Water	

IOC MARINE POLLUTION MONITORING SYSTEM (MARPOLMON)

LOG FOR SAMPLING AND REPORTING
PARTICULATE PETROLEUM RESIDUES (TAR BALLS)

PLATFORM/SHIP						
TYPE	NAME *	CALL SIGN *	INSTITUTE	CRUISE NO. *	SAMPLING DEVICE	MESH SIZE
COUNTRY						

STATION NUMBER	SAMPLE NUMBER * (1)	WIDTH OF NET (CM)	DISTANCE TOWED (N.M.)	TO BE FILLED BY LABORATORY		DATE * (GMT)			TIME * (GMT)		POSITION *					OPTIONAL ENVIRONMENTAL INFORMATION					
				WEIGHT OF TAR (g)	TAR CONC. (mg/m²)	DAY	MO.	YR.	HR.	MIN.	Q	LAT. DEG.	LAT. MIN.	LONG. DEG.	LONG. MIN.	WIND DIR.	WIND SP.	WAVE PER.	WAVE HT.	TEMP. °C AIR	TEMP. °C WATER
						Y Y	M M	J J	G G	g g	Q	L L	L L	L L L	L L	d d	f f	P P	H H	T T T	T T T

NAME AND ADDRESS (Individual/Office to contact reference this report.)

* NOTE: — Include items marked with an asterisk on bottle label.

(1) Mark SAMPLE NUMBER on both sample bottle and bottle cap.

IOC MARINE POLLUTION MONITORING SYSTEM (MARPOLMON)

LOG FOR SAMPLING, ANALYSIS AND REPORTING DISSOLVED/DISPERSED HYDROCARBONS

PLATFORM/SHIP		
TYPE	NAME *	CALL SIGN *

COUNTRY

INSTITUTE

CRUISE NUMBER *

STATION NUMBER	SAMPLE NUMBER *	CONCENTRATION (2) µg/kg	DATE * (GMT)			TIME * (GMT)		QAQC	POSITION *				OPTIONAL ENVIRONMENTAL INFORMATION								REMARKS
			DAY	MO.	YR.	HR.	MIN.		LAT. DEG.	LAT. MIN.	LONG. DEG.	LONG. MIN.	WIND DIR.	WIND SP.	WAVE PER	WAVE HT.	TEMP. °C AIR	TEMP. °C WATER			
			YY	MM	JJ	GG	mm	Q	LL°	LL'	LLL°	LL'	ddd	ff	PP	HH	aT	TTT	TTT		

NAME AND ADDRESS *(Individual/Office to contact reference this report.)*

*NOTE: – *Include items marked with an asterisk on bottle label.*

(1) This form should be accompanied by the IOC (MARPOLMON-P) Data Documentation Form
(2) Concentration to be determined by Analysis Laboratory

IOC MARINE POLLUTION MONITORING SYSTEM (MARPOLMON)

DATA DOCUMENTATION FORM

(To be prepared by Analysis Laboratory; for use with IOC (MARPOLMON-P) Log for Sampling, Analysis, and Reporting Dissolved/Dispersed Hydrocarbons)

PLATFORM/SHIP		
TYPE	NAME	CALL SIGN

COUNTRY	INSTITUTE	CRUISE NUMBER	ANALYSIS LABORATORY

STATION NUMBER		SAMPLE NUMBER		(1) COLLECTION TECHNIQUE AND SAMPLING EQUIPMENT	(2) IDENTIFICATION AND STANDARDS	(3) ANALYTICAL METHODS AND IDENTIFICATION OF INSTRUMENTATION
FROM	TO	FROM	TO			

ADDITIONAL DOCUMENTATION

TYPE OF SAMPLE BOTTLE	ESTIMATED ACCURACY OF METHOD
FIXING AGENTS	OTHER (Specify)
DURATION OF SAMPLE STORAGE	OPTIONAL: TAR BALL ANALYSIS ONLY
	☐ SAMPLE FROZEN ☐ REFRIGERATED ☐ AMBIENT
DATE(S) OF SAMPLE ANALYSIS	☐ FILTERED ☐ UNFILTERED
SAMPLE SPLIT	FILTER SPECIFICATIONS
EXTRACTION PROCEDURE	SAMPLE PURIFICATION

NOTE

(1) e. g. plastic bucket, glass jar, ship's intake.

(2) The oil used to calibrate the instrumentation or method.

(3) Narrative description, with emphasis on differences (if any) from the techniques recommended

LABEL OF SAMPLE BOTTLE FOR DISSOLVED/DISPERSED PETROLEUM HYDROCARBONS

Label of sample bottle

Cruise _____ Platform/Ship (Name and Call Sign) _____

Date/Time (GMT) _____ Sample No _____

Lat _____

Long _____

Comments _____

LONG-TERM PROGRAMME FOR POLLUTION MONITORING AND RESEARCH IN THE MEDITERRANEAN SEA (MED POL - PHASE II)

Name & Address of Participating Institute:

....
....
....
....

Name(s) of person(s) reporting:

....
....

LOG FORM ... for reporting data on monitoring of HEAVY METALS in MARINE SEDIMENTS (page 1).

METHODOLOGY: 1) State if "Reference Methods for Marine Pollution Studies" were employed (yes/no) ..... If "yes", indicate No(s): .... (If "no", annex description of method on extra sheet¹)

2) Mention your participation in IAEA intercalibration exercises: ....

SAMPLING - INFORMATION														SAMPLE INFORMATION				ANALYTICAL INFORMATION						ANALYTICAL QUALITY ASSURANCE INFORMATION			
		DATE			LOCATION											GRAIN SIZE [µm]											
					LATITUDE			LONGITUDE																			
SAMPLE CODE	SAMPLE NUMBER	DAY	MONTH	YEAR	DEGREES	MINUTES	N/S	DEGREES	MINUTES	E/W	DEPTH (m)	TYPE OF SAMPLER	GENERAL INF. (e.g. pebbles, sand, clay, mud, etc. / colour and any other observation)	DEPTH INTERVAL OF LAYER (e.g. 0 - 1 cm or any other interval (mm or cm))	Avg.	fract. analyzed	DW/WW RATIO	ELEMENT	FRACTION	NUMBER OF ANALYSES	AVERAGE CONC. (mg/kg DW)	STANDARD DEV. (%)	INTERNAL REFERENCE MATERIAL	NUMBER OF ANALYSES	AVERAGE CONC. (mg/kg DW)	STANDARD DEV. (%)

LOG FORM .. for reporting data on monitoring of **HEAVY METALS** in **MARINE SEDIMENTS**. (page ..)

SAMPLING - INFORMATION													SAMPLE INFORMATION				ANALYTICAL INFORMATION						ANALYTICAL QUALITY ASSURANCE INFORMATION			
		DATE			LOCATION										GRAIN SIZE (µm)											
					LATITUDE			LONGITUDE																		
SAMPLE CODE	SAMPLER NUMBER	DAY	MONTH	YEAR	DEGREES	MINUTES	N/S	DEGREES	MINUTES	E/W	DEPTH (m)	TYPE OF SAMPLER	GENERAL INF. (e.g. pebbles, sand, clay, mud, etc.) colour and any other observation)	DEPTH INTERVAL OF LAYER (e.g. 0 - 1 cm or any other interval (mm or cm))	Avg.	Fract. analyzed	DW/WW RATIO	ELEMENT	FRACTION	NUMBER OF ANALYSES	AVERAGE CONC. (mg/kg DW)	STANDARD DEV. (%)	INTERNAL REFERENCE MATERIAL	NUMBER OF ANALYSES	AVERAGE CONC. (mg/kg DW)	STANDARD DEV. (%)

LONG-TERM PROGRAMME FOR POLLUTION MONITORING
AND RESEARCH IN THE MEDITERRANEAN SEA
(MED POL - PHASE II)

Name & Address of Participating Institute:

....
....
....
....

Name(s) of person(s) reporting:

....
....

LOG FORM ... for reporting data on monitoring of CHLORINATED HYDROCARBONS in MARINE SEDIMENTS (page 1)

METHODOLOGY: 1) State if "Reference Methods for Marine Pollution Studies" were employed (yes/no) ..... If "yes", indicate No(s): .... (If "no", annex description of method on extra sheet!)

2) Mention your participation in IAEA intercalibration exercises: ....

SAMPLING - INFORMATION													SAMPLE INFORMATION				ANALYTICAL INFORMATION						ANALYTICAL QUALITY ASSURANCE INFORMATION			
		DATE			LOCATION										GRAIN SIZE [µm]											
					LATITUDE			LONGITUDE																		
SAMPLE CODE	SAMPLE NUMBER	DAY	MONTH	YEAR	DEGREES	MINUTES	N/S	DEGREES	MINUTES	E/W	DEPTH (m)	TYPE OF SAMPLER USED	GENERAL INF. (e.g. pebbles, sand, clay, mud, etc. / colour and any other observation)	DEPTH INTERVAL OF LAYER (e.g. 0 - 1 cm or any other interval (mm or cm))	Avg.	Fract. analyzed	DW / WW RATIO	EXTRACT. ORGANIC MATTER	COMPOUND	NUMBER OF ANALYSES	AVERAGE CONC. (ng/g DW)	STANDARD DEV. (%)	INTERNAL WORKING REFERENCE MATERIAL	NUMBER OF ANALYSES	AVERAGE CONC. (ng/g DW)	STANDARD DEV. (%)

LOG FORM -- for reporting data on monitoring of CHLORINATED HYDROCARBONS in MARINE SEDIMENTS (page --)

SAMPLING - INFORMATION													SAMPLE INFORMATION				ANALYTICAL INFORMATION						ANALYTICAL QUALITY ASSURANCE INFORMATION			
		DATE			LOCATION																					
					LATITUDE			LONGITUDE							GRAIN SIZE (µm)											
SAMPLE CODE	SAMPLE NUMBER	DAY	MONTH	YEAR	DEGREES	MINUTES	N/S	DEGREES	MINUTES	E/W	DEPTH (m)	TYPE OF SAMPLER	GENERAL INF. (e.g. pebbles, sand, clay, mud, etc. / colour and any other observation)	DEPTH INTERVAL OF LAYER (e.g. 0 - 1 cm or any other interval (mm or cm))	Avg.	Fract. ana-lyzed	DW / WW RATIO	EXTRACT. ORGAN. MATTER	COMPOUND	NUMBER OF ANALYSES	AVERAGE CONC. (ng/g DW)	STANDARD DEV. (%)	INTERNAL REFERENCE MATERIAL	NUMBER OF ANALYSES	AVERAGE CONC. (ng/g DW)	STANDARD DEV. (%)

Annex V

List of MAP Technical Reports Series

No. 1 UNEP/IOC/WMO: Baseline studies and monitoring of oil and petroleum hydrocarbons in marine waters (MED POL I). MAP Technical Reports Series No. 1. UNEP, Athens 1986.

No. 2 UNEP/FAO: 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.

No. 3 UNEP/FAO: 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.

No. 4 UNEP/FAO: Research on the effects of pollutants on marine organisms and their populations (MED POL IV). MAP Technical Reports Series No. 4. UNEP, Athens 1986.

No. 5 UNEP/FAO: Research on the effects of pollutants on marine communities and ecosystems (MED POL V). MAP Technical Reports Series No. 5. UNEP, Athens 1986.

No. 6 UNEP/IOC: Problems of coastal transport of pollutants (MED POL VI). MAP Technical Reports Series No. 6. UNEP, Athens 1986.

No. 7 UNEP/WHO: Coastal water quality control (MED POL VII). MAP Technical Reports Series No. 7. UNEP, Athens 1986.

No. 8 UNEP/IAEA/IOC: Biogeochemical studies of selected pollutants in the open waters of the Mediterranean (MED POL VIII). MAP Technical Reports Series No. 8. UNEP, Athens 1986.

No. 8 Add. UNEP: Biogeochemical studies of selected pollutants in the open waters of the Mediterranean (MED POL VIII). Addendum, Greek Oceanographic Cruise 1980. MAP Technical Reports Series No. 8, Addendum. UNEP, Athens 1986.

No. 9 UNEP: Co-ordinated mediterranean pollution monitoring and research programme (MED POL - PHASE I). Final report. 1975 - 1980. MAP Technical Reports Series No. 9. UNEP, Athens, 1986.

No. 10 UNEP/FAO: Research on the toxicity, persistence, bioaccumulation, carcinogenicity and mutagenicity of selected substances (Activity G). Final reports on projects dealing with toxicity (1983-85). MAP Technical Reports Series No. 10. UNEP, Athens, 1987.

No. 11 UNEP: Rehabilitation and reconstruction of Mediterranean Historic settlements. Documents produced in the first stage of the Priority Action (1984-1985). MAP Technical Reports Series No. 11. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1986.

No. 12 UNEP: Water resources development of small Mediterranean islands and isolated coastal areas. Documents produced in the first stage of the Priority Action (1984-1985). MAP Technical Reports Series No. 12. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1987.

No. 13 UNEP: Specific topics related to water resources development of large Mediterranean islands. Documents produced in the second phase of the Priority Actions (1985-1986). MAP Technical Reports Series No. 13. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1987.

No. 14 UNEP: Experience of Mediterranean historic towns in the integrated process of rehabilitation of urban and architectural heritage. MAP Technical Reports Series No. 14. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1987 (in press).

No. 15 UNEP: Environmental aspects of aquaculture development in the Mediterranean region. Documents produced in the period 1985-1987. MAP Tehcnical Reports Series No. 15. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1987 (in press).

No. 16 UNEP: Promotion of soil protection as an essential component of environmental protection in Mediterranean coastal zones. Selected documents (1985-1987). MAP Technical Reports Series No. 16. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1987 (in press).

No. 17 UNEP: Seismic risk reduction in the Mediterranean region. Selected studies and documents (1985-1987). MAP Technical Reports Series No. 17. UNEP, Priority Actions Programme, Regional Activity Centre, Split, 1987 (in press).

No. 18 UNEP/FAO/WHO: Assessment of the state of pollution of the Mediterranean sea by mercury and mercury compounds. MAP Technical Reports Series No. 18. UNEP, Athens, 1987.

No. 19 UNEP/IOC: Assessment of the state of pollution of the Mediterranean Sea by petroleum hydrocarbons. MAP Technical Reports Series No. 19. UNEP, Athens, 1988.

No. 20 UNEP/WHO: Epidemiological studies related to environmental quality criteria for bathing waters, shellfish-growing waters and edible marine organisms (Activity D). Final report on project on relationship between microbial quality of coastal seawater and health effects (1983-86). MAP Technical Reports Series No. 20. UNEP, Athens, 1988.

No. 21 UNEP/UNESCO/FAO: Eutrophication in the Mediterranean Sea: Receiving capacity and monitoring of long-term effects. MAP Technical Reports Series No. 21. UNEP, Athens, 1988.

No. 22 UNEP/FAO: Study of ecosystem modifications in areas influenced by pollutants (Activity I). MAP Technical Reports Series No. 22. UNEP, Athens, 1988.

Annex VI

Integral project on the quality assurance of monitoring data for MED POL

1. Introduction

The growing worldwide concern about the quality of data from marine pollution monitoring programmes has, for some time, been felt within the MED POL component of the Mediterranean Action Plan. Over the past six years, the International Laboratory of Marine Radioactivity (ILMR), IAEA, has collaborated with MED POL in a sustained effort to improve the comparability of the data from national monitoring programmes (contributing to MED POL) by the organization and implementation of intercalibration exercises (originally as part of IAEA's Analytical Quality Control Service). These exercises appear to have resulted in a general improvement in data quality but their effectiveness and scope is rather limited in that they provide only single reference points (probing one stage of an analytical process at best once per year) in what is a much more complex problem of Quality Assurance (QA). More recently, some scientists have questioned whether an intercalibration exercise alone can validate monitoring data from a given laboratory. Furthermore, many laboratories do not participate in exercises at all or return incomplete data sets.

Clearly then, data quality improvement demands a much wider and more dynamically interactive approach to QA. Early in 1987, the Marine Environmental Studies Laboratory (MESL), a new section of ILMR (handling IAEA's work in co-operation with other Agencies in the field of non-radioactive marine pollution), proposed to MED POL a pilot project for adopting such an approach. The work embraces all aspects of QA including instrument maintenance, training, expert evaluation of sampling and sample work-up, intercalibration, reference materials and methods and support with data handling. The Contracting Parties of the Mediterranean Action Plan at their Fifth Ordinary Meeting (Athens, 7-11 September 1987), approved the basic philosophy and essential elements of this proposal including:

- formulation, review and amendment, as appropriate, of Reference Methods;
- formulation of data reporting formats for all the monitoring parameters;
- continuation of the regular intercalibration exercises of analytical techniques for agreed 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, design and enhancement of monitoring programmes;
- joint exercises, where appropriate, on monitoring, including intercomparison of sampling and analysis.

The present proposal addresses to chemical contaminants, while microbiological parameters require a somewhat different approach which is currently under consideration by WHO.

2. Basic objective

To establish an integrated programme for Quality Assurance (QA) for the monitoring of contamination of the marine environment in the Mediterranean region with special emphasis on member States establishing national monitoring programmes.

The programme will cover all aspects of QA including instrument installation and maintenance, training, the use of Reference Methods and Certificated Reference Materials, intercalibration, the production and use of internal reference materials, split-sampling and analysis, data quality review and data handling and application.

The development of this pilot QA programme is based on experiences within the Regional Seas programme (particularly MED POL) together with those of other international organizations such as IOC, ICES and IAEA. CLose cnosultation has been maintained with GEMSI (IOC/UNEP co-sponsored Group of Experts on Methods: Standard and Intercalibration) and GESREM (IOC/UNEP/IAEA co-sponsored Group of Experts on Standards and Reference Materials) in order to formulate the present approach. Both the pilot QA programme and the Expert Groups are foreseen as essential components of a wider new UNEP/IAEA/IOC project presently being devised to provide technical support to all Regional Seas monitoring programmes.

3. Concepts

Quality Assurance (QA) - All those planned and systematic actions necessary to provide adequate confidence that monitoring data will satisfy given quality requirements.

Good Laboratory Practice (GLP) - Good laboratory practive is concerned with the organizational process and the conditions under which laboratory studies are planned, performed, monitored, recorded and reported.

4 Critical points for ensuring good data quality

The obtention of high quality data depends on a large number of factors which must be carefully reviewed as part of any integral quality assurance strategy. Some of these are entirely internal matters to the monitoring laboratories involved (good organization and management, location of the laboratories and safety aspects, selection of personnel and allocation of responsibilities) but others may benefit from international support to the national strategy and are listed below. The nature of the support will be described in sections 5-7. The critical points are:

(i) Specialized training

(ii) Experimental/Monitoring strategy:

- sampling and storage:
  - sampling strategy
  - way of sampling
  - storage and preservation
  - sample identification
- laboratory analysis:
  - use of Reference Methods and standard reporting forms
  - correct use of internal and certified reference materials
  - function of notebooks

(iii) Apparatus, chemicals, reagents and blanks

- apparatus:
  - preventive maintenance and emergency repair
  - calibration
  - cleaning glassware and other laboratory ware
- chemicals:
  - registration (guidelines for)
  - quality control checks
  - rules for storing waste
  - handling and storage
  - preparation of standard solutions
- blanks.

(iv) Quality assessment:

- Inter-laboratory and intra-laboratory testing programmes;
- reference materials.

(v) Statistical quality control:

- control charts.

(vi) Data workshop and application:

- data reporting and archiving;
- use of QA data to assess the significance of results from environmental monitorng programmes.

5. Why is this strategy different from previous ones?

The present proposal is for an integral strategy covering all of the above mentioned points. Previous QA projects have focussed on passive intercalibration exercises in which laboratories are supplied with homogenized samples with unknown contaminant concentrations. Whilst this has produced some improvement in data quality it only controls one small part of the overall process - the analysis itself and such important aspects as sampling strategy sample preparation and workup, are left out. Intercalibration exercises can, at best, be organized once per year whereas QA and GLP should be continuous processes with constant feedback to the analysts on how well they are performing. Intercalibration exercises are often regarded as an end-of-term examination instead of a basic and vital part of any monitoring procedure.

6. Basic structure of the present proposal

The new strategy outlined here is essentially very simple and provides a series of steps for guaranteeing data quality:

6.1 Installation and maintenance of equipment

The UNEP/MED POL maintenance engineer will continue his programme of regular visits to laboratories in order to set-up, calibrate, maintain and repair major items of analytical equipment. Furthermore he will now organize courses for users/technicians in order that they will have a greater understanding of their analytical equipment and can perform the routine tasks of preventive maintenance and calibration themselves.

6.2 Setting-up of analytical techniques

Before a QA programme can be fully effective, the most adequate techniques have to be working well on a routine basis. International organizations cannot usually provide basic training in chemistry or biology but can provide specialist training in the monitoring of environmental contaminants both in a central laboratory (in another member State or at the Marine Environmental Studies Laboratory, MESL, in Monaco) and on-job training during a joint monitoring exercise (see below). A full suite of Reference Methods are also available for performing the analysis. Once good analytical results are being achieved under adequate supervision then the next important step in the overall strategy can be initiated.

6.3 The joint monitoring exercise

The joint monitoring exercise provides an opportunity to review all the points outlined in section 3 (above) and to propose the necessary adjustments in order to improve data quality. The idea is simple. One or more specialists from MESL will join the host laboratory in a pilot or routine monitoring exercise in its planning, sampling, analytical and data review stages. He will remain with the group for enough time as is necessary to ensure that the work can be routinely repeated in the host lab without his direct intervention. With experienced host labs this process will be reduced to a split sampling exercise in which the specialist will join the host lab on a sampling expedition, some samples will be homogenized and split into two parts to be analysed at both the national labs and at the specialist's own lab (MESL). The specialist will then prepare a data quality review covering all aspects of QA and comparing his data with that obtained by his hosts and will identify any problems that require correction.

During the joint monitoring exercise, the specialist will also supervise the preparation of a large batch of internal reference material. This is vital for the next step in the integrated QA strategy.

6.4 Establishing a continuous QA programme

Again, the basic concepts involved here are quite simple. Monitoring laboratories, with the help of the specialist mentioned in 6.3, will prepare and carefully analyze an internal reference material, IRM, (MESL will also check the analysis of this material). Certificated reference materials (produced by IAEA/UNEP, NBS (USA) or NRC (Canada)) will also be employed during this calibration procedure. The monitoring laboratory must devote between 5-10% of its analytical effort on the routine analysis of this material. That is to say, every 10 samples or so, the IRM will be analyzed and the results of this analysis will be plotted on a quality control chart. The laboratory must also continue to participate in international intercalibration exercises as an external control procedure.

Unacceptable deviations from the quality control chart will mean that all routine monitoring analysis are stopped until the cause of the problem is discovered and corrected. Again here, the specialist can be consulted, in exactly the same way as the instrument technician is called when a major equipment breadown occurs. If the budget permits, the specialist will make routine visits to the host laboratory in order to examine quality control charts and discuss new developments in sampling and analytical strategy.

6.5 Production of data reports and data reviews

During their visits, the specialists will assist in the preparation of data reports which will take into account the quality control charts in order to calculate probable errors in the monitoring data. This calculation is vital if environmental impact assessment is to be made of the data.

7. Support documents

A series of Reference Methods has been produced by UNEP in collaboration with IOC/IAEA/FAO/WHO and WMO. These are under constant review in order to provide the best and most generally applicable method for each contaminant. The series will be extended in 1988 in order to provide specific guidelines for quality assurance. Manuals will be produced in order to cover: sampling strategy; sampling, storage and sample workup; good laboratory practice; and, data handling.

8. Implementation

The pilot programme is focused on three major activity areas (in order of priority): organochlorne pesticides; trace metal contaminants (including mercury); petroleum hydrocarbons). The first three member States selected for testing the procedure in 1988 were Egypt, Algeria and Morocco. The QA programme will be fully operational in the first three countries by the end of 1988.

Annex VII

List of maintenance and repair service visits to national institutions
January 1987 - March 1988

1. PAP/RAC, Split, Yugoslavia

Date: February 1987
Purpose of visit:
1. Service of DW/OS-55 printer
   a) Problem with accentuated characters (WANG 05 World Language character set installed)
2. Service of second workstation power supply
   a) Faulty electrolyte capacitor
3. Service of PC-PM016 Matrix printer
   a) Main electronic PCB taken to Monaco laboratory for standard exchange

2. Institute of Oceanography and Fisheries, Split, Yugoslavia

Date: February 1987
Purpose of visit:
1. Regular service of new GC Mod. 3400, VARIAN
   a) Too high base frequency (ECD). Feedback circuit preselected on "Capillary" position thus giving a stable baseline and test chromatogramme o.k.
2. Installation of an external events relay with the associated printed circuit board

3. ROCC, Manoel Island, Malta

Date: April 1987
Purpose of visit:
1. Regular service of WANG Word/data processing system
   a) Replaced faulty 10Mb Winchester disk
   b) New operating system installed (World Language)
   c) New WL Word Processing software package installed
   d) IBM emulation software installed
   e) Data Base 3 software installed
   f) Basic instruction on how to use DB3 software was given
   g) PC main power supply service (bad connection in fan motor)
   h) Reorganized documents in all libraries on OIS-50 computer

4. Medical School, Guardamangia, Malta

Date: April 1987
Purpose of visit:
1. Regular service of AAS Mod. 1250, VARIAN
   a) Thermal drift of HCL current (bad 6DQ6A lamp)
   b) Carbon Rod Atomizer, CRA-90 problem (spikes during ASH/RAMP changeover; bad relay)
2. Regular service of GC Mod. 3700, VARIAN
   a) Instrument in good condition after replacement of bad ECD

5. VARIAN, Zug, Switzerland

Date: May 1987
Purpose of visit: 1. SPECTRAA 10/20/30/40 service training course
Note: This is the new family of AAS, controlled by microprocessors. The SPECTRAA 10 AAS was recently purchased for the Marine Research Centre in Latakia, Syria.

6. Institute of Oceanography and Fisheries, Alexandria, Egypt

Date: July 1987
Purpose of visit: 1. Installation of GC Mod. 3400, VARIAN with following options:
- ECD
- FID
- TSD
- Capillary Split/Splitless Injector
- Pesticide Packed Glass Column
- Fused silica capillary column
- Integrator, Mod. 4290
- Powered relay for external events

a) Installation of the second channel option to the Integrator Mod. 4290, VARIAN
b) Conditionning of the system
c) Test chromatogrammes both with ECD and FID o.k.

2. Service of GC. Mod. 2400, VARIAN
a) Faulty Isothermal Proportional Controller Board
b) Channel A Flow Controller
c) ECD signal probe
d) Cleaning and conditioning overnight
e) Test chromatogramme both with ECD and FID o.k.

3. Service of Spectrophotometer BAUSCH/LOMB
a) Broken "Clear" key

4. Service of AAS Mod. 1250, VARIAN
a) Bad lamp 6DQ6A in HCL power supply unit
b) Bad "Lamp current" potentiometer (Channel 1)
c) Dirty lenses and mirrors
d) Final test o.k.

5. Service of two Aanderaa current meters RCM-4
a) One current meter had faulty rotor counter unit which was replaced
b) Both current meters decoder contacts were cleaned (blue grease)
c) Both current meter's readings of six channels were taken during couple of hours (10 min. intervals). All data correct

6. Service of Aanderaa Tape Reader
a) Manufacturing a cable for analog signal output

7. Department for postgraduate studies, University of Alexandria, Egypt

Date: July 1987
Purpose of visit: 1. Service of AAS Mod. 175, VARIAN
2. Service of GC mod. 3700, VARIAN

8. SPA/RAC, Salammbo, Tunisia

Date: July 1987
Purpose of visit: 1. Regular service of WANG Data/Word Processing System
a) New Local Communications Option Board reinstalled (standard exchange)
b) Service of DW/OS-55 printer (bad form-feed drive motor)

9. I.N.S.T.O.P., La Goulette, Tunisia

Date: July 1987
Purpose of visit: 1. Regular service of AAS Mod. 1250, VARIAN
a) Instrument in good working condition. Only a mechanical adjustment of HCL turret was performed in order to optimize incident HCL light beam through the optical system
b) Adjustment of the BC-6, the Background Corrector Unit

10. I.S.M.A.L., Algiers, Algeria

Date: January 1988
Purpose of visit: 1. Service of GC3700
2. Installation of the glass injector with the adapter
3. Installation of the detector insert with the adapter for the make-up gasline
4. Installation of the make-up gas flow controller
5. tranformation of the existing carrier gas shut-off valve into the make-up gas on-off valve
6. Installation of the megabore column
7. Service of the AAS 1250
a) Digital display unit
b) Fuse 150mA
c) Lamp 24V/BC-6 unit replacement
d) H2 lamp for background correction replacement
e) PM tube replacement
f) IC7441 replacement
g) Resistor 30kOhm/10W replacement
h) Log. amplifier adjustment
i) Integrator PCB adjustment

11 Institut National Agronomique et Vétérinaire, Rabat, Morocco

Date: January 1988
Purpose of visit:
1. Installation of programme module into H&P integrator
2. Service of AAS 1250
   a) DVM Module Assy replacement
   b) Power supply PCB replacement
   c) IC7441 replacement
   d) Transistor 2N4250 replacement
   e) Transistor 2N3565 replacement
   f) Diode EM401 replacement
   g) Resistor 1.8 KOhm/0.25W replacement
   h) Resistor 150 KOhm/0.25W replacement
3. Installation of CRA-90
   a) Workhead replacement

12. PAP/RAC, Split, Yugoslavia

Date: January 1988
Purpose of visit:
1. Service of the WANG PC computer
   a) Winchester disk mechanically damaged (should be replaced during next service visit)
   b) Floppy disk drive (Format, Copy and Read Disk Error); should be replaced during next service visit
2. Service of the WANG PC-PM0016 matrix printer
   a) Main electronic printer circuit board replaced

13. Oceanographic Institute, Split, Yugoslavia

Date: January 1988
Purpose of visit:
1. Second regular service of GC3400, VARIAN
2. Replacement of Spindle Assy (Aanderaa Current Meter)

14. SPA/RAC, Salammbo, Tunisia

Date: February 1988
Purpose of visit:
1. Service of the WANG PC computer
   a) Winchester controller PCB replacement
   b) Installation of the WL DOS
   c) Installation of the WLWP, DB3, LCO and IBM emulation software packages
   d) Modification of the CONFIG.SYS file (for DB3 work)

15. I.N.S.T.O.P., La Goulette, Tunisia

Date: February 1988
Purpose of visit:
1. Service of AAS 1250, VARIAN
   a) Faulty Auto-Zero function (capacitor 0.1uF replaced)

LIST OF TRAINING AND FELLOWSHIPS
JANUARY 1987 - MARCH 1988

ALGERIA

UBOB ALG-MEKK A. MEKKI
INSTITUT DES SCIENCES DE LA MER ET DE L'AMENAGEMENT DU LITTORAL (ISMAL), ALGER

DETERMINATION OF HEAVY METALS
8-19 FEBRUARY 1988
LAB. DES ECOSYSTEMES MARINS, UNIV. DE BRETAGNE OCCIDENTALE, BREST, FRANCE

ILMR ALG-TABT D. TABTI
INSTITUT DE SCIENCES DE LA MER ET DE L'AMENAGEMENT DU LITTORAL (ISMAL), ALGER

DETERMINATION OF HALOGENATED HYDROCARBONS IN MARINE ORGANISMS
14 MARCH - 1 APRIL 1988
ILMR, IAEA, MONACO

CYPRUS

NCMA CYP-DAMA D. DAMASKINOS
FISHERIES DEPARTMENT, MINISTRY OF AGRICULTURE, NICOSIA

UNDERTAKE TRAINING COURSE ON USE OF CURRENT METERS
11-22 JANUARY 1988
NATIONAL CENTRE FOR MARINE RESEARCH, ATHENS

TC87 CYP-DEME A. DEMETROPOULOS
FISHERIES DEPARTMENT, MINISTRY OF AGRICULTURE, NICOSIA

CONSULTATIONS ON TURTLE CONSERVATION
CONSULTATIONS WITH IUCN ON TURTLE CONSERVATION PROJECT
ATHENS, ZAKYNTHOS, GENEVA, 6-12 SEPTEMBER 1987

MT87 CYP-HADJ M. HADJICHRISTOPHOROU
FISHERIES DEPARTMENT, MINISTRY OF AGRICULTURE, NICOSIA

FIRST MEETING OF THE GROUP OF EXPERTS ON MARINE TURTLES OF THE COUNCIL OF EUROPE
STRASBOURG, FRANCE, 1-2 SEPTEMBER 1987

EGYPT

ILMR EGY-ABBA M. ABBAS
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, ALEXANDRIA

DETERMINATION OF HALOGENATED HYDROCARBONS IN MARINE ORGANISMS
14 MARCH - 1 APRIL 1988
ILMR, IAEA, MONACO

ILMR EGY-ABDU A. M. ABDULLAH
FACULTY OF AGRICULTURE, UNIVERSITY OF ALEXANDRIA, ALEXANDRIA

DETERMINATION OF HALOGENATED HYDROCARBONS IN MARINE ORGANISMS
14 MARCH - 1 APRIL 1988
ILMR, IAEA, MONACO

MENA EGY-ARAF A. ARAFA
HIGH INSTITUTE OF PUBLIC HEALTH, ALEXANDRIA

MICROBIOLOGICAL ANALYSES OF SEAWATER
16-27 NOVEMBER 1987
ENVIRONMENTAL POLLUTION CONTROL PROJECT, MINISTRY OF ENVIRONMENT, ATHENS

MD87 EGY-ELHA . ELHALWAGI
LABORATORY OF THE NATURAL RESEARCH CENTRE OF EGYPT, CAIRO

INTERNATIONAL SYMPOSIUM ON THE PROTECTION OF MARINE DEVELOPMENT
MARSEILLE, FRANCE, 4-6 NOVEMBER 1987

ILMR EGY-ELNA M. EL NAGGAR
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, ALEXANDRIA

DETERMINATION OF PETROLEUM HYDROCARBONS
1-12 FEBRUARY 1988
ILMR, IAEA, MONACO

IOFA EGY-LEGO T. LEGOVIC (ASSISTANCE TO EGYPT)
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ZAGREB

TRAINING ON DATA ANALYSIS AND MODELLING OF EGYPTIAN SCIENTISTS
13 FEBRUARY - 3 MARCH 1988
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, ALEXANDRIA

ILMR EGY-TAYE F. T. TAYEL
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, ALEXANDRIA

DETERMINATION OF HALOGENATED HYDROCARBONS IN MARINE ORGANISMS
14 MARCH - 1 APRIL 1988
ILMR, IAEA, MONACO

GREECE

SO87 GRE-BONA M. BONAZUNTAS (20% OF DSA ONLY)
DEPARTMENT OF CIVIL ENGINEERING, NATIONAL TECHNICAL UNIVERSITY, ATHENS

BARCELONA CONFERENCE ON SEA OUTFALLS
BARCELONA, SPAIN, 18-20 NOVEMBER 1987

JW87 GRE-CAST J. CASTRITSI-CATHARIOS (TICKET ONLY)
ZOOLOGICAL LABORATORY, UNIVERSITY OF ATHENS, ATHENS

II INTERNATIONAL WORKSHOP ON JELLYFISH IN THE MEDITERRANEAN
TRIESTE, ITALY, 2-5 SEPTEMBER 1987

CE87 GRE-FYTI K. FYTIANOS
ENVIRONMENTAL POLLUTION CONTROL LAB., UNIVERSITY OF THESSALONIKI, THESSALONIKI

MEETING ON CHEMISTRY FOR THE ENVIRONMENTAL PROTECTION
TORINO, ITALY, 15-18 SEPTEMBER 1987

PW87 GRE-FYTI K. FYTIANOS
ENVIRONMENTAL POLLUTION CONTROL LAB., UNIVERSITY OF THESSALONIKI, THESSALONIKI

SPECIALISED CONFERENCE ON POLLUTION OF WATER
BRUSSELS, BELGIUM, 24-28 NOVEMBER 1987

THES GRE-GEOR D. GEORGAS
INSTITUTE OF GEOLOGY AND MINERAL EXPLORATION, ATHENS

TO DISCUSS THE DRAFT PAPER ON IMPLICATIONS OF CLIMATIC CHANGES IN THE
THERMAIKOS GULF, 25-30 JANUARY 1988
THESSALONIKI, GREECE

THEB GRE-GEOR D. GEORGAS
INSTITUTE OF GEOLOGY AND MINERAL EXPLORATION, ATHENS

TO COLLECT MATERIAL RELEVANT TO THE CASE STUDY - IMPLICATIONS OF LONG-TERM
CLIMATIC CHANGES IN THE THESSALONIKI BAY, 14-19 DECEMBER 1987
THESSALONIKI, GREECE

UATP GRE-KOUT C. KOUTITAS
DEPARTMENT OF CIVIL ENGINEERING, ARISTOTELIAN UNIVERSITY OF THESSALONIKI

CONSULTATIONS ON PHYSICAL OCEANOGRAPHIC PROBLEMS
3-5 FEBRUARY 1988
LABORATORY OF PHYSICAL GEOGRAPHY, UNIVERSITY OF ATHENS, ATHENS,

---

IOFS GRE-LASC A. LASCARATOS
DEPARTMENT OF PHYSICAL GEOGRAPHY, UNIVERSITY OF ATHENS, ATHENS

ANALYSIS OF SEA-LEVEL DATA CONCERNING MESO-SCALE VARIABILITY
18-26 AUGUST 1987
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT

JW87 GRE-SMYR A. SMYRNIOTOPOULOU (TICKET ONLY)
SCHOOL OF CHEMISTRY, UNIVERSITY OF ATHENS, ATHENS

II INTERNATIONAL WORKSHOP ON JELLYFISH IN THE MEDITERRANEAN
TRIESTE, ITALY, 2-5 SEPTEMBER 1987

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COMO, ITALY, 3-4 NOVEMBER 1987

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MARSEILLE, FRANCE, 4-6 NOVEMBER 1987

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FIRST WORKSHOP ON THE TRANSPORT OF POLLUTANTS BY SEDIMENTATION
VILLEFRANCE-SUR-MER, FRANCE, 9-13 DECEMBER 1987

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WORKSHOP ON HAZARDOUS MATERIALS/WASTE MANAGEMENT
VIENNA, AUSTRIA, 22-26 JUNE 1987

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II INTERNATIONAL WORKSHOP ON JELLYFISH IN THE MEDITERRANEAN
TRIESTE, ITALY, 2-5 SEPTEMBER 1987

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KAVALA, GREECE, 6-11 SEPTEMBER 1987

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KAVALA, GREECE, 6-11 SEPTEMBER 1987

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METHODS FOR ENUMERATION OF PSEUDOMONAS AERUGINOSA FROM SEAWATER BY MEMBRANE FILTRATION METHOD, 24-28 AUGUST 1987
FACULTY OF SCIENCE, DEPT. OF MICROBIOLOGY, UNIVERSITY OF MALAGA, MALAGA

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II INTERNATIONAL WORKSHOP ON JELLYFISH IN THE MEDITERRANEAN
TRIESTE, ITALY, 2-5 SEPTEMBER 1987

MOROCCO

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

DETERMINATION OF HALOGENATED HYDROCARBONS IN MARINE ORGANISMS
14 MARCH - 1 APRIL 1988
ILMR, IAEA, MONACO

ILMR MOR-ELOM A. EL-OMARI
OFFICE NATIONAL DE L'EAU POTABLE, RABAT

DETERMINATION OF HALOGENATED HYDROCARBONS IN MARINE ORGANISMS
14 MARCH - 1 APRIL 1988
ILMR, IAEA, MONACO

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DETERMINATION OF HEAVY METALS AND PESTICIDES
21 MARCH - 1 APRIL 1988
TOULOUSE, FRANCE

ILMR MOR-KOUR A. KOURKOURCOUS
ECOLE MOHAMMADIA D'INGENIEURS, RABAT

DETERMINATION OF HALOGENATED HYDROCARBONS IN MARINE ORGANISMS
14 MARCH - 1 APRIL 1988
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DETERMINATION OF HEAVY METALS AND PESTICIDES
7-18 MARCH 1988
PARIS

UPAR MOR-NEJJ A. P. NEJJAR
ECOLE MOHAMMADIA D'INGENIEURS, RABAT

DETERMINATION OF AIR POLLUTANTS
21-31 MARCH 1988
LPSA, UNIVERSITE PARIS VII, PARIS

SPAIN

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SEMINAR ON THE EEC DIRECTIVE ON BATHING WATER QUALITY
COMO, ITALY, 3-4 NOVEMBER 1987

SYRIA

MRCL SYR-BERN M. BERNHARD (ASSISTANCE TO SYRIA)
E.N.E.A., LA SPEZIA

ASSISTANCE IN THE IMPLEMENTATION OF THE SYRIAN NATIONAL MONITORING PROGRAMME
14-21 JUNE 1987
WATER CONTROL LABORATORY AND MARINE RESEARCH CENTRE LATAKIA, SYRIA

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II INTERNATIONAL WORKSHOP ON JELLYFISH IN THE MEDITERRANEAN
TRIESTE, ITALY, 2-5 SEPTEMBER 1987

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TRAINING ON ANALYSIS OF MICROBIOLOGICAL CONTAMINANTS OF SYRIAN SCIENTISTS
6-18 DECEMBER 1987
WATER CONTROL LABORATORY, LATAKIA

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INTERNATIONAL SYMPOSIUM ON PROTECTION OF THE MARINE ENVIRONMENT AGAINST URBAN POLLUTION WASTE WATER TREATMENT TECHNICAL CO-OPERATION
MARSEILLE, FRANCE, 4-6 NOVEMBER 1987

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INTERNATIONAL SYMPOSIUM ON ENVIRONMENT MANAGEMENT
ISTANBUL, TURKEY, 5-9 JUNE 1987

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INTERNATIONAL SYMPOSIUM ON ENVIRONMENT MANAGEMENT
ISTANBUL, TURKEY, 5-9 JUNE 1987

TURKEY

MP88 TUR-BALK T. BALKAS
GENERAL DIRECTORATE OF ENVIRONMENT, OFFICE OF THE PRIME MINISTER, ANKARA

MEETING OF THE PREPARATION OF THE IZMIR BAY MONITORING PROGRAMME
SPLIT, YUGOSLAVIA, 30 MARCH - 1 APRIL 1988

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II INTERNATIONAL WORKSHOP ON JELLYFISH IN THE MEDITERRANEAN
TRIESTE, ITALY, 2-5 SEPTEMBER 1987

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MATTERS RELATED TO MED POL ACTIVITIES, DISCUSSIONS WITH MED UNIT, UNIVERSITY OF ATHENS, UNIVERSITY OF THESSALONIKI AND NATIONAL MARINE RESEARCH CENTRE OF ATHENS
30 NOVEMBER - 4 DECEMBER 1987

YUGOSLAVIA

EM87 YUG-FANU N. FANUKO
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22ND EUROPEAN MARINE BIOLOGY SYMPOSIUM (22ND EMBS)
BARCELONA, SPAIN, 17-22 AUGUST 1987

UATP YUG-GACI M. GACIC
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT

ANALYSIS OF SEA-LEVEL DATA CONCERNING MESO-SCALE VARIABILITY
25 JANUARY - 2 FEBRUARY 1987
LABORATORY OF PHYSICAL GEOGRAPHY, UNIVERSITY OF ATHENS, ATHENS

UATG YUG-GACI M. GACIC
INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT

ATHENS, GREECE, 20-23 OCTOBER 1987
DEPARTMENT OF PHYSICAL GEOGRAPHY, UNIVERSITY OF ATHENS, ATHENS

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INSTITUTE OF OCEANOGRAPHY AND FISHERIES, SPLIT

CONSULTATIONS ON PHYSICAL OCEANOGRAPHIC PROBLEMS
1-5 FEBRUARY 1988
LABORATORY OF PHYSICAL GEOGRAPHY, UNIVERSITY OF ATHENS, ATHENS

MO87 YUG-GACI M. GACIC (TICKET ONLY)
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INTERNATIONAL MEETING ON OCEANOGRAPHY
VANCOUVER, CANADA, 9-22 AUGUST 1987

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CONSULTATION ON PHYSICAL OCEANOGRAPHIC PROBLEMS
1-5 FEBRUARY 1988
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KAVALA, GREECE, 6-11 SEPTEMBER 1987

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22ND EUROPEAN MARINE BIOLOGY SYMPOSIUM (22ND EMBS)
BARCELONA, SPAIN, 17-22 AUGUST 1987

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4TH SYMPOSIUM OF ENVIRONMENTAL POLLUTION (MESAEP)
KAVALA, GREECE, 6-11 SEPTEMBER 1987

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ISTANBUL, TURKEY, 5-9 JUNE 1987

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GORDON RESEARCH CONFERENCE ON ESTUARINE PROCESSES
VENTURA, CALIFORNIA, USA, 29 FEBRUARY 1988-4 MARCH 1988

OTHER

UGEB SPA-BARC D. BARCELO
ENVIRONMENTAL CHEMISTRY DEPT., (CSIC), BARCELONA

CONSULTATIONS WITH PROF. G. PERSOONE ON ORGANOPHOSPHORUS COMPOUNDS
6-8 DECEMBER 1987
LABORATORY FOR BIOLOGICAL RESEARCH, UNIVERSITY OF GHENT, BELGIUM

SL87 GRE-DAVA A. DAVAKIS
UNITED NATIONS ENVIRONMENT PROGRAMME, MEDITERRANEAN ACTION PLAN, ATHENS

INTERNATIONAL ASSOCIATION OF MARINE SCIENCE LIBRARIES AND INFORMATION CENTRES
(IAMSLIC) CONFERENCE
HALIFAX, NOVA SCOTIA, CANADA, 4-9 OCTOBER 1987

GN87 YUG-DEGO D. DEGO88IS
CENTRE FOR MARINE RESEARCH, RUDJER BOSKOVIC INSTITUTE, ROVINJ

SECOND MEETING OF THE WORKING GROU ON NUTRIENTS
STOCKHOLM, SWEDEN, 27-29 OCTOBER 1987

UNEP SPA-MUJE R. MUJERIEGO
UNIVERSITAT POLITECNICA DE BARCELONA, BARCELONA

TO DISCUSS THE ORGANIZATIONS AND PRESENTATION OF MICROBIAL POLLUTION DATA
OF MED POL - PHASE II, 15-20 FEBRUARY 1988
UNEP, ATHENS

MOAL MON-VILL J. P. VILLENEUVE (ASSISTANCE TO ALG & MOR)
ILMR, IAEA, MONACO

DATA QUALITY ASSURANCE PROGRAMME
16 JANUARY - 23 JANUARY 1988
ALGERIA AND MOROCCO

Annex IX

Budget for 1987

(SECTION I)
CHAPTER 3 - MED POL - MONITORING

	m/m	Approved	Actual Expenditures
1. PERSONNEL A/			
Experts/Consultants			
- FAO Fishery Expert, P-5	12	67,000	63,510
- WHO Senior Scientist, P-5	12	75,000	69,341
- IAEA Maintenance Engineer, P-3	12	62,000	62,000
Administrative Support			
- FAO Secretary, Athens, Local G-4	12	14,000	7,783
- WHO Secretary, Athens, Local G-4	12	15,000	16,050
- WHO Secretary, Copenhague, Local G-4	6	9,000	11,360
- IAEA Lab. Assistant, Monaco, Local G-5	12	27,000	27,000
Component Total		269,000	257,044
2. TRAVEL B/			
- WHO		10,000	9,405
- FAO		10,000	10,291
- IOC/UNESCO		5,000	5,000
- WMO		5,000	5,000
- IAEA		20,000	20,000
Component Total		50,000	49,696

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.

	Approved	Actual Expenditures
3. SUBCONTRACTS		
- Printing of VIII ICSEM/IOC/UNEP proceedings (ICSEM through the secretariat	15,000	-
- Assistance through agreements	431,000	321,207
Component Total	446,000	321,207
4. MEETINGS/TRAINING/WORKSHOPS/FELLOWSHIPS		
Meetings:		
- Working Group for Scientific and Technical Co-operation	45,000	45,535
Training:		
- On-job training (through the secretariat)	70,000	47,018
Fellowships:		
- Fellowships for attendance at meetings:		
- Preparation of documentation to assess results of monitoring activities	30,000	14,378
- Consultation meetings on LBS monitoring (WHO)	15,000	11,972
- Other meetings	25,000	24,302
Component Total	185,000	143,205
5. EQUIPMENT C/		
Expendable		
- Spare parts for common maintenance service (through IAEA)	25,000	20,120
Non-expendable		
- Laboratory equipment (to ILMR)	17,500	10,219
Component Total	42,500	30,339

C/ Equipment committed through Agreements included in Section 3 (Sub-contracts).

	Approved	Actual Expenditures
6. RENTAL AND MAINTENANCE OF PREMISES D/	-	-
Component Total	-	-
7. OPERATION AND MAINTENANCE OF EQUIPMENT E/		
- IAEA	2,000	2,000
Component Total	2,000	2,000
8. REPORTING COSTS F/		
- IAEA	1,500	1,500
Component Total	1,500	1,500
9. SUNDRY G/		
- IAEA	1,500	1,500
Component Total	1,500	1,500
GRAND TOTAL	997,500	806,491

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 printng 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 - MED POL - RESEARCH

	Approved	Actual Expenditures
SUBCONTRACTS		
Activity A	36,000	29,750
B	18,000	3,500
C	18,000	16,500
D	36,000	27,250
E	18,000	15,000
F	26,000	36,000
G	26,000	71,000
H	26,000	9,000
I	20,000	15,500
J	12,000	3,000
K	30,000	41,500
L	30,000	53,100
Sub-total	296,000	321,100
MEETINGS		
Activity D (Epidemiological studies related to Environmental Quality Criteria)	12,500	
- Consultation on microbial pollution of Mediterranean coastal areas and associated health effects (Athens, Greece, 22-26 Sept. 1987)		12,500
L (Pollutant-transfer processes)	24,000	
- Workshop on Air Pollution of the Mediterranean Sea (Belgrade, Yugoslavia, 10-13 November 1987)		12,274
- First Mediterranean Workshop on the transport of pollutants by sedimentation (Villefranche-sur-mer, France, 10-12 December 1987)		12,685
Sub-total	36,500	37,459
GRAND TOTAL	332,500	358,559

Annex X

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

General

1. The purpose of this monitoring is to provide information on the pollution load reaching the Mediterranean Sea through the atmosphere and to develop capabilities for predicting such pollution, and thus to provide the basis for control and abatement measures.

2. The monitoring will be based on the work of national research centres designated by their governments.

3. The major objectives of the programme are the following:

- to evaluate the importance of the atmospheric transport and deposition of land-based contaminants to coastal and open Mediterranean waters;
- to assess the airborne contamination level of trace substances which can affect the quality of human life on coastlines;
- to identify sources and source regions for these atmospheric contaminants;
- to develop predictive models of the airborne contamination of the Mediterranean environment to provide the basis for future action.

Measurements

4. The monitoring areas will include (i) impact areas directly influenced by identifiable local sources of air pollution (i.e. large seaside cities and industrial areas) and (ii) reference (background) areas not directly influenced by identifiable local sources of air pollution. The reference monitoring stations should be exposed most of the time to maritime air and could be located at remote coastal sites, on Mediterranean islands, and also on existing offshore platforms. Complementary information could be obtained during cruises on board research vessels.

5. Because of the expected temporal variability of atmospheric concentrations and fluxes of contaminants, any monitoring programme should be run continuously for several years. Furthermore, since the ultimate objective is to predict atmospheric contaminant inputs, a simultaneous effort will be undertaken to model the atmospheric transport and deposition of these contaminants at the different spatial scales considered. The models would be progressively calibrated using the data gathered from the field measurements.

6. Atmospheric pollutants to be monitored include:

a) inorganic, organic and radioactive contaminants of concern for marine waters, marine life and human life along coastlines;

b) tracers of natural and anthropogenic sources;

c) meteorological parameters.

The list of pollutants recommended for monitoring is given as appendix 1.

7. Sampling procedures

7.1 Sampling frequency: the sampling duration both for air and rain concentration determinations should not generally exceed one week. When feasible, higher sampling frequency, on a daily basis or even shorter, would be desirable for selected contaminants. This would allow the use of field data for model calibration exercises.

7.2 Aerosols: in order to minimize sample and analytical contamination problems, the use of high volume aerosol filter samplers (as for the WMO BAPMoN network) is recommended and specific collection substrates have to be used to sample inorganic and organic contaminants. It is recommended that in the first phase of the monitoring programme, priority should be given to the sampling of inorganic contaminants, including radionuclides. The following chemical parameters should be analyzed:

- heavy metals: Cd, Pb first priority
  Cu, Zn second priority;

- other inorganic elements indicators of natural and anthopogenic contributions: Na, Al SO_4^{2-};

- radionuclides: ^{137}Cs, transuranic elements. Because of the very low levels of these contaminants, the analysis may require the use of composite filter samples integrating up to a month of sampling;

- organic species: PCBs, DDTs, HCHs (hexachlorocyclohexanes), PAHs and other particulate hydrocarbons.

When feasible, other possible parameters to be studied would be:

- elemental carbon, fluorides;

- heavy metals such as Hg, Sn, As, Se.

Furthermore, useful information on the particle size distributions of the atmospheric contaminants could be obtained through the use of high-volume cascade impactor samplers. This would allow to improve model calculations of dry deposition fluxes.

7.3 Gas phase: continuous ozone monitoring during the summer season and, if necessary (e.g. at some impact sites), throughout the year should be conducted. This is particularly relevant for impact stations where expected high ozone levels may generate photochemical smog and influence the transformation of some organic compounds such as hydrocarbons.

7.4 Atmospheric deposition: owing to sampling difficulties, direct measurements of dry deposition for atmospheric contaminants cannot be considered as feasible at the present stage in a continuous monitoring programme. It is recommended that dry deposition fluxes should be estimated by using aerosol concentration data and relevant deposition models to the sea surface.

Wet deposition (rain) should ideally be collected on an event basis. Owing to recent developments in instrumentation, it is recommended that a fully automatic device be employed, similar to that used in the WMO BAPMoN network. However, rain collections on an event basis may not be feasible at all stations. It is therefore recommended that precipitation be collected on a weekly basis. For contaminants such as heavy metals and organic species the sampling protocols have to be different from the standard procedures used for major ions. It is therefore recommended that 3 rain collectors be implemented at each station:

- one for pH, acidity, alkalinity, conductivity and major ions: the standard BAPMoN procedure is recommended;

- one for heavy metals and radionuclides: rain-collecting bottles should be preacidified;

- one for organic species: the collection surface should be made of stainless steel. The rain sample processing should meet the procedures adopted in MED POL for organic species in seawater.

First priority should be given to the implementation of two rain collectors, one for major ions and one for heavy metals and radionuclides.

7.5 Meteorological parameters measured during the sampling periods: the sampling sites should be located as close as possible, or within a major meteorological station such as a surface synoptic station or a main meteorological station.

The sampling records should be accompanied by the records on the chronology of precipitation events that occurred during the sampling period. These records should include the beginning and ending times of the precipitation event as well as the information on intensity on preferably hourly basis.

In addition to this, the sampling records should be accompanied at least by the data on the wind speed and direction, air and sea temperature and humidity and other weather phenomena.

If these data are not available or representative from the nearby major meteorological station, they should be measured at the sampling site during these sampling periods.

8. Analytical procedures

The use of the best available techniques either in individual laboratories or in central laboratories nominated by participating countries for conducting analyses within the programme is recommended. Such techniques should be based on reference methods which should be provided to the participating laboratories by WMO and UNEP.

Intercomparisons and intercalibrations of analytical methods should be carried out. These exercises could be co-ordinated by various host countries or international organizations.

9. Data reporting and exchange of information

Monitoring data from background stations should be reported on weekly-averaged basis for precipitation chemistry and on daily basis for pollutant concentrations in air (particles). The corresponding formats, based on the existing WMO BAPMoN formats, are given as appendices 2 and 3. The annual national data reports should be sent to the Co-ordinating Unit for the Mediterranean Action Plan (MED Unit) not later than 1 March of the following year. Copies of all national reports would then be sent to WMO, co-ordinating these activities within MED POL. At the beginning of the monitoring programme implementation the WMO BAPMoN Data Centre (National Climatic Centre, Asheville, N.C., USA) could be used for preliminary treatment and storage of the data. Otherwise a regional data centre should be nominated for this purpose.

National reports from impact stations containing generalised results should also be sent to the MED Unit annually by 1 March of the following year.

Review reports on national activities relevant to the study of airborne pollution of the Mediterranean Sea (including information on national projects and programme, laboratories and their potentialities and needs, scientists involved in studies, cruises, meetings, etc.) could be very useful for further planning and co-ordination of the programme. This information should be collected by the end of 1988 by the MED Unit and WMO through the National Co-ordinators for MED POL and then updated annually.

Countries who joined the programme should nominate one or several monitoring stations for the programme and report information on the stations to the MED Unit using the format given in appendix 4.

10. Assistance and training

Mutual bilateral and multilateral assistance in programme implementation should be encouraged through consultant services, joint cruises, on-job training, etc. Assistance should be provided to the participating institutions to get necessary sampling equipment using funds available for the monitoring component of MED POL. The WMO training courses on background air pollution measurements held every year in English or in French should be used for training as fully as possible.

11. Emission inventories

Gathering and compilation of emission data for selected pollutants are the important prerequisite of reliable model calculations. The collection of emission data should be initiated as soon as possible using common methodologies.

Modelling

12. Modelling of transport, diffusion, transformation and deposition of air pollutants is an indispensable element of the programme needed both for interpretation of monitoring results and for assessment and forecast of airborne pollution. When appropriate models are developed and validated on the basis of monitoring data, the modelling will be the main means of such assessment and forecast.

13. When possible, model calculations for interpretation of experimental results will be made by national institutions participating in the programme. In addition an institute (evidently a meteorological institute) in the region should be nominated to co-ordinate modelling activities, to collect relevant data and to make model calculations of air pollutant transport and deposition for the whole region.

14. The following two horizontal scales are considered to be of primary importance for modelling:

- local scales (in the order of 100 km); and
- regional scales (in the order of 1000 km and more).

On both scales, two separate problems should be addressed: a) emission horizontal and vertical diffusion, transformation, dry and wet deposition rates, and b) meteorological driving parameters.

15. At the initial stage of the programme implementation, a one layer, Lagrangian backward trajectory model could be applied in view of its simplicity and relatively low computational cost. However, primarily due to improved computational resources, and better understanding of the processes involved, more sophisticated and potentially more powerful Eulerian models including those based on higher order closure hypotheses and more appropriate treatment of orography are becoming available in the scientific community and in the weather services in the region. A sequential Eulerian model should be used for simulation of selected worst cases of contaminant dispersion and transport over the Mediterranean Basin versus a climatological model that might be used on a seasonal scale.

16. To obtain the relevant meteorological data, two possible ways are proposed. One is to use the existing meteorological records in order to identify predominant weather patterns in the region, or in the local areas, and to estimate the pollution transport and deposition on the basis of the data obtained in this way. The other possibility is to use comprehensive synoptic scale fine-mesh atmospheric models as 4-dimensional interpolation tools. Both approaches have advantages and disadvantages and require further research.

17. Development and improvement of models, parametrization of transport, diffusion, transformation and deposition processes, compilation of meteorological data and model calculations of meteorological data fields will be implemented under the research component of MED POL.

Appendix 1

List of recommended parameters

	Routine programme	Extended programme
Precipitation		
pH	+	+
Conductivity	+	+
Acidity	+	+
Alkalinity	+	+
SO_4^{2-}-S	+	+
NH_4^+	+	+
NO_3^--N	+	+
Na	+	+
K	+	+
Mg	+	+
Ca	+	+
Cl	+	+
Cd	+	+
Pb	+	+
Cu	+	+
Zn	+	+
Radionuclides	-	+
Organic compounds	-	+
Precipitation amount	+	+

	Routine programme	Extended programme
Particles		
SO_4^{2-}-S	-	+
Na	-	+
Al	-	+
Cd	+	+
Pb	+	+
Cu	-	+
Zn	-	+
Radionuclides	-	+
Organic compounds	-	+
Total SPM	+	+
Air volume	+	+
Gas		
O_3 *)	+	+
Meteological parameters		
Wind speed	+	+
Wind direction	+	+
Air temperature	+	+
Sea surface temperature **)	+	+
Dew point	+	+
Relative humidity	+	+
Barometric pressure	+	+

*) at impact stations
**) when applicable

Appendix 2

Weekly Precipitation Data Form

MAIL TO:

2 _____
1 Agency

Country | Area | Site
2 3 4 5 6 7 8 9 10

_____
Station name

Agency | Project | Time
Q | 0 | 11 12 13 14

_____
Site Address

Year | Month | Day
15 16 | 17 18 | 19 20

Sample start day ——————→

Have siting criteria changed? Yes ☐ No ☐

Parameter Name	Method	Units		Parameter Code	Method	Units	DP		Value
Precip (NG)	Volumetric	mm	(23-32)	6 5 3 0 1	7 1	2	9	0	(33-36)
Precip (SG)	Volumetric	mm	(37-46)	6 5 3 0 1	8 1	2	9	0	(47-50)
pH	Glass Electrode	pH	(51-60)	6 5 3 0 2	8 1	6	1		(61-64)
Conductivity	Cond. Cell	µS/cm	(65-74)	6 5 3 0 3	8 1	6	9		(75-78)

Parameter Name	Method	Units		Parameter Code	Method	Units	DP		Value
Na		mg/l	(23-32)	6 5 3 1 1		6	2		(33-36)
K		mg/l	(37-46)	6 5 3 1 2		6	2		(47-50)
Mg		mg/l	(51-60)	6 5 3 1 3		6	2		(61-64)
Ca		mg/l	(65-74)	6 5 3 1 4		6	2		(75-78)

Parameter Name	Method	Units		Parameter Code	Method	Units	DP		Value
Cl		mg/l	(23-32)	6 5 3 1 6		6	2		(33-36)
NH_4-(N)		mg/l	(37-46)	6 5 3 1 8		6	2		(47-50)
NO_3-(N)		mg/l	(51-60)	6 5 3 2 1		6	2		(61-64)
SO_4-(S)		mg/l	(65-74)	6 5 3 2 2		6	2		(75-78)

Parameter Name	Method	Units		Parameter Code	Method	Units	DP		Value
Acidity	Alkaline Tit.	µeq/l	(23-32)	6 5 3 3 0	8 1	6	7		(33-36)
Alkalinity	Alkaline Tit.	µeq/l	(37-46)	6 5 3 3 1	8 1	6	7		(47-50)
			(51-60)						(61-64)
			(65-74)						(75-78)

Parameter Name	Method	Units		Parameter Code	Method	Units	DP		Value
Cd		µg/l	(23-32)	6 5 3 3 2		6	3		(33-36)
Pb		µg/l	(37-46)	6 5 3 3 7		6	3		(47-50)
Cu		µg/l	(51-60)	6 5 3 3 3		6	3		(61-64)
Zn		µg/l	(65-74)	6 5 3 3 8		6	3		(75-78)

*(NG) Denotes National Gauge
(SG) Denotes Sampling Gauge

Appendix 3

DAILY DATA FORM

MAIL TO:

24-hour or greater sampling interval

2

Agency

Station name

Site Address

Area Site

Agency Project Time Year Month

Q 0

Time Interval

	PARAMETER SPM	PARAMETER Cd	PARAMETER Pb	PARAMETER
NAME PARAMETER CODE	1 1 1 0 1			
Method	7 5			
Units	0 1			
DP				

Day	St	Hr
01		
02		
03		
04		
05		
06		
07		
08		
09		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		

DP → 4 3 2 1 0

Enter Local Standard Time, 24 hour clock

Appendix 4

Background information about each station

Name of the station : _____

Responsible national institute : _____

Full address : _____

_____

Country : _____ Tel. No. : _____

Latitude : _____ Longitude : _____

Elevation : _____

Distance from the nearest meteorological station : _____

Surrounding area (agricultural land, forest, important sources, etc., if possible). If the monitoring station is within a monitoring network, this should be indicated) : _____

_____

_____

_____

_____

_____

Monitored parameters : a) at present _____

_____

b) being planned _____

_____

_____

Available equipment : a) for sampling _____

_____

b) for analysis _____

_____

Annex XI

Budget proposed for 1989

SECTION I
CHAPTER 3 - MED POL - MONITORING

	m/m	Approved 1988	Proposed 1989
1. PERSONNEL A/			
(a) Experts/Staff			
- FAO Fishery Expert, P-5	12	67,000	68,000
- WHO Senior Scientist, P-5	12	69,000	70,000
- IAEA Maintenance Engineer, P-3	12	62,000	63,000
Sub-total 1(a)		198,000	201,000
(b) Consultants		15,000	35,000
Sub-total 1(b)		15,000	35,000
(c) Administrative Support			
- FAO Secretary, Athens, Local, G-3	12	10,000	11,000
- WHO Secretary, Athens, Local, G-4	12	11,000	12,000
- WHO Secretary, Copenh. Local, G-4	6	9,000	10,000
- IAEA Lab. Assist., Monaco, Local, G-4	12	27,000	28,000
Sub-total 1(c)		57,000	61,000
Component total		270,000	297,000
2. TRAVEL B/			
- FAO		11,000	12,000
- UNESCO/IOC		5,500	6,000
- WHO		11,000	12,000
- WMO		7,500	8,000
- IAEA		22,000	24,000
Component total		57,000	62,000

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

B/ The cost of travel of UNEP staff related to MED POL is covered through Chapter I (Co-ordination) of MAP budget

	Approved 1988	Proposed 1989
3. SUBCONTRACTS		
Land-based Sources Protocol implementation:		
- Pilot projects on monitoring of organo-phosphorus compounds, including selection of method and preparation of assessment and proposed measures	35,000	-
- Pilot project on monitoring of organotin compounds, including selection of method and preparation of assessment and proposed measures	35,000	-
- Pilot project on monitoring of persistent synthetic materials, including selection of method and preparation of assessment and proposed measures	35,000	-
- Pilot project on monitoring of carcinogenic, teratogenic or mutagenic substances, including selection of method and preparation of assessment and proposed measures	5,000	35,000
- Pilot project on monitoring of submarine outfalls and evaluation of their technical efficiency	20,000	-
- Preparation of draft annex IV to LBS Protocol on pollutants transported through the atmosphere	7,500	-
- Compilation of use of alternative products and processes	-	10,000
- Survey of products and installations causing pollution	-	10,000
- Assistance to countries for the implementation of LBS Protocol (experts, training, etc.)	45,000	55,000

	Approved 1988	Proposed 1989
Data quality assurance:		
- Intercalibration and training course on determination of microbiological pollution	15,000	15,000
- Intercalibration and training course on determination of chlorinated hydrocarbons	15,000	-
- Intercalibration and training course on determination of organic mercury	-	15,000
- Training course on treatment and interpretation of biological effects data	15,000	-
- Training course on analysis of physical oceanographic data and time-series	-	15,000
- Purchase of standards and reference materials to be distributed to laboratories	20,000	23,000
- Joint exercises on monitoring and intercomparison of results including sampling and analysis of split samples, expert assistance to laboratories for sampling, analysis, presentation and evaluation of results and improved arrangement for dissemination of relevant scientific material	70,000	100,000
Monitoring:		
- Assistance through agreements for monitoring programmes	520,000	580,000
Other activities:		
- Printing of IX ICSEM/IOC/UNEP Workshop proceedings	10,000	-
Component total	847,500	858,000

	Approved 1988	Proposed 1989
4. MEETINGS/TRAINING/WORKSHOPS/FELLOWSHIPS		
MEETINGS:		
- Working Groups for Scientific and Technical Co-operation	50,000	55,000
Land-based Sources Protocol implementation:		
- Ad hoc meeting for the preparation of annex IV of LBS	7,500	-
Data quality assusrance:		
- Ad hoc consultation meeting on data processsing	7,500	7,500
Monitoring:		
- Meetig of responsible investigators of monitoring programmes	40,000	-
- Ad hoc consultation meeting on monitoring	7,500	7,500
TRAINING:		
- On-job training (through the secretariat)	60,000	80,000
FELLOWSHIPS:		
- Attendance at IX ICSEM/IOC/UNEP Workshop and other meetings	60,000	35,000
Component total	232,500	185,000
5. EQUIPMENT		
(a) Expendable: Spare parts for common maintenace services (through IAEA)	30,000	35,000
(b) Non-expendable: Laboratory equipment (to ILMR), purchase and maintenance	20,000	20,000
Component total	50,000	55,000
TOTAL CHAPTER 3	1,457,000	1,457,000

	Approved 1988	Proposed 1989
A. SUBCONTRACTS		
Activities A-L	300,000	285,000
Component total	300,000	285,000
B. MEETINGS		
Consultation Meeting on environmental quality criteria for the Mediterranean Sea food (Activity C)	1/	-
Consultation Meeting on epidemiological and related studies regarding environmental quality criteria (Activity D)	-	15,000
Consultation Meeting on programmes and measures in connexion with Art. 7 of the LBS Protocol (Activity E)	-	15,000
Review Meeting on oceanographic processes of transfer and distribution of pollutants (Activity F)	15,000	-
Consultation Meeting on reference methods on toxicity (Activity G)	15,000	-
Workshop on monitoring and assessment of the airborne pollution (Activity L)	-	15,000
Component total	30,000	45,000
TOTAL CHAPTER 4	330,000	330,000

1/ *Meeting will be funded by WHO/EURO at no cost to MTF*