

Introduction

1. The 2nd training course for the technical operators involved in the eutrophication monitoring programme of MED POL Phase III was held at the Marine Research Center (CRM) in Cesenatico, Italy, during the period 2-5 November 2004. The course was organized by MAP/MED POL and three Italian institutes; ARPA-ER, CRM and ICRAM. The training course was undertaken in English and discussions were held in both English and French.

Attendance

2. The training course was attended by 13 nominees from 11 Mediterranean countries and 13 different institutes. The countries represented were Albania, Croatia, Cyprus, Egypt, France, Greece, Israel, Morocco, Serbia and Montenegro, Tunisia and Turkey. A number of experts and the representatives of the organizing institutes contributed to the course with a series of presentations and lectures. A list of participants is attached as Annex 1 to this report.

Opening and organization of the work

3. On 2 November Dr. Ivo Ricci Maccarini, President of CRM, opened the training course, welcomed the participants and reiterated the interest and willingness of CRM to continue to support the Eutrophication monitoring activities of MED POL. Dr. Attilio Rinaldi, Director of ARPA-ER SOD and Dr. Anna Maria Cicero, Director of ICRAM, briefed on the activities of their organizations and emphasized the importance they gave to the present training activity and to the MED POL activities.
4. Mr Francesco Saverio Civili, MED POL Programme Coordinator, expressed his gratitude to ICRAM, ARPA-ER and CRM for their continuous contribution to the MED POL Programme and for their substantial support to the organization of the training on Eutrophication monitoring for the second time. He addressed the participants by briefing on the objectives and prospects of the MED POL programme and on the expected role of young scientists in the implementation of the programme at the national level.
5. All participants briefly introduced themselves and their institutes in a round table presentation.
6. The activity was organized according to the provisional agenda (Annex 2). In parallel to the training programme, two expert sessions were held to review the applicable methodologies and techniques to be used by the laboratories implementing the MED POL eutrophication monitoring strategy.

Lectures

7. As part of the training programme, seven lectures were made by the experts. On the first day, the Italian National Monitoring Programme for coastal waters was introduced by Dr Erica Magaletti (ICRAM) including the future needs according to EU-Water Framework Directive (WFD). Her presentation was followed by the presentation by Dr Guido Premazzi (JRC) of the full content of WFD. He also provided an analysis of the major difficulties faced in the preparation phase of the long-term implementation of the WFD. The last presentation of the first day given by Dr Luigi Alcaro (ICRAM) was about the management of emergencies in coastal waters which covered oil and chemical pollution. Both presentations were quite comprehensive providing findings on the impacts of various hazardous substances on ecosystems and humans. On the

last day of the programme, a lecture on fishery and its impact on coastal environment was given by Dr Otello Giovanardi (ICRAM).

8. The remaining lectures were directly related to the technical content of the programme. Phytoplankton taxonomy/species identification and marine biotoxins were presented by CRM SOD staff and complemented by practical applications in the laboratory. Dr Franco Giovanardi (ICRAM) presented a comprehensive overview of the techniques for data treatment and statistical elaboration of data in a coastal eutrophication monitoring programme. The presentation also provided information on how to set up a statistically significant sampling strategy in a monitoring programme and on how to obtain and use different indices related to trophic levels and conditions.

Laboratory work

9. The laboratory work was organized in three different laboratories to practice the different techniques used in the determination of biotoxins, nutrients and chlorophyll-a. Work with microscope for phytoplankton taxonomy and species identification was also carried out. Different methodologies were presented in a comparative way during the lectures.

On-board work

10. On 4 November 2004, on board applications were performed with R/V Daphne. The work was conducted in two groups to cover CTD measurements and data acquisition and sampling of phytoplankton, zooplankton and sediments.

Training material

11. Hard copies of all the training material was provided to the participants during the training course leaving the texts of all presentations made during the lectures to be disseminated in a CD at a later stage with the report of the course. The CD would also include two UNEP documents; Eutrophication Monitoring Strategy of MED POL (2003) and Assessment of the State of Eutrophication in the Mediterranean Sea (1996).

General comments on the course

12. The 2nd training course for the technical operators of MED POL Phase III eutrophication monitoring programme was successfully held as planned. 13 young researchers –few of them being young managers- actively participated the course with enthusiasm and scientific interest. Although the experience and the level of knowledge of each participant was not the same, the selection of candidates had been carefully made to ensure that all participants would increase their knowledge and experience to be transmitted to their institutes.
13. When reviewing the overall participation and the results of the two training activities held in 2003 and 2004, it appears that 18 institutes from 14 Mediterranean countries were covered by the programme and 21 people were trained. It is also worthwhile to note that some of the represented institutes in both activities were already participating in the MED POL programme while the others were now prepared to cooperate within the framework of MED POL Eutrophication monitoring programmes.
14. The training course was closed at 16:30 hours on 5 November 2004.

Expert sessions

Session I

On 2 November 2004 (at 16:00 hours), a small group of experts met at CRM to review the available and applicable methodologies of sampling, sample handling and analysis of nutrients (all forms), chlorophyll-a, dissolved oxygen and physical parameters which are included in the programme mandatory list. The specific objectives of the group were to

- revise the draft reference methods (UNEP(DEC)/MED WG.231/Inf.9, 2003) developed for nutrient and phytoplankton pigment analysis
- identify the gaps in the draft manual to have a complete manual for the eutrophication monitoring programme of MED POL and propose how to fill these gaps with reference documentation
- examine other manuals and documents widely used
- produce a revised version of the draft reference methods manual as an outcome of the session

The group met also on 3 and 4 November 2004 and was able to incorporate the additional sections required by the programme with proper references. Re-structuring of the manual was also recommended and the MED POL Secretariat proposed to incorporate all the comments in the draft manual after the meeting and to circulate it among the experts. The proposal was accepted and it was decided to finalize the revised draft before the end of the year.

Session II

The experts of the second session met only once on 3 November 2004 (at 09:30 hours) to review the available and applicable methodologies of sampling, sample handling and analysis for phytoplankton determinants with the specific objectives to

- examine common guidelines and methods used in Mediterranean coastal waters
- examine other manuals and documents commonly used in different regions
- consult MED POL on the steps to achieve common guidelines for the coastal waters of the Mediterranean within the framework of MED POL Eutrophication Monitoring programme

After the discussions on the details of the methodologies, the group decided to provide MED POL the related section on phytoplankton determinants to be incorporated in the overall manual of the programme.

Material reviewed by the experts during the sessions were

- Draft Reference Methods for the Programme "Nutrient and phytoplankton pigment analysis in seawater"
- Italian national monitoring programme guidelines
- Literature and other tested methods for some specific areas and cases for the Mediterranean or similar regions
- OSPAR and HELCOM manuals for eutrophication studies

Annex 1

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Annex 2

Tuesday, 2nd November

- 10:00 Opening session. (Welcome by the Authorities)
- ❖ Dr. Ivo Ricci Maccarini (*CRM - President*)
 - ❖ Dr. Attilio Rinaldi (*ARPA-ER SOD – Director*)
 - ❖ President of the Provincia Forlì - Cesena
 - ❖ Dr. Anna Maria Cicero (*ICRAM – Director*)
 - ❖ Dr. Francesco Saverio Civili (*MED POL Programme Coordinator*)
- 11:30-13:00 Lecture on “Experience in monitoring coastal environment: the Italian National Programme.” (*Dr. Erika Magaletti – ICRAM*)
- 13:00-14:30 Lunch
- 14:30-16:00 Lecture on “Present status of EU legislation in the field of water policy: the Water Framework Directive 2000/60 EC”. (*Dr. Guido Premazzi – JRC, Ispra*)
- 16:00-16:15 Coffee Break
- 16:15-18:30 Lecture on “Managements of emergencies in coastal environment”. (*Dr. Ezio Amato - ICRAM*)

Wednesday, 3rd November

- 09:00-10:30 Algal Marine biotoxins (*Dr. Roberto Poletti, Dr. Silvia Pigozzi -CRM*)
- 10:30-10:45 Coffee break
- 10:45-13:00 Training activities in the biotoxins laboratory
- 13:00-14:30 Lunch
- 14:30-18:30 Phytoplankton taxonomy and species identification. Theoretical and practical activities. (*Dr. Marinella Pompei , Dr. Silvia Pigozzi - CRM and Dr. Cristina Mazzotti - ARPA-ER, SOD*)

Thursday, 4th November

- 09:00-10:30 **1st group:** Chlorophyll determination: training activities in laboratory (*Dr. Anna Milandri - CRM*)
- 2nd group:** CTD measurements and data acquisition, sampling of Phytoplankton (Niskin bottles, net), Zooplankton (net) and surface sediments on board of the R/V “DAPHNE”. (*ARPA-ER*)
- 10:30-12:30 (Swap groups)
- 12:30-14:30 Lunch
- 14:30-18:30 Seawater analysis: practical exercises and demonstration in laboratory, by using spectrophotometer and autoanalyzer for nutrients determination (*Dr Paola Martini- Sandro Tarlazzi Regional Environmental Agency of the Emilia Romagna*)

Friday, 5th November

- 09:00-13:00 Lecture on “Data treatment and statistical elaborations.” (*Dr. Franco Giovanardi - ICRAM*)
- 13:00-14:30 Lunch
- 14:30-16:00 Lecture on “Fishery and impact on coastal environment”. (*Dr. Otello Giovanardi - ICRAM*)
- 16:00 Conclusions of the course.



