

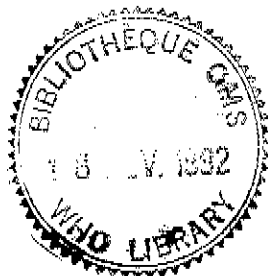


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SUMMARY REPORT

Fourth Training Course and Intercalibration Exercise in Microbiological Methodology for Marine Pollution Monitoring (WHO/UNEP joint project, MED POL Phase II)

Rabat
21-26 October 1991



1992

EUR/HFA target 20

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ABSTRACT

Twenty participants from seven Mediterranean countries attended the course and exercise, the last in a series of four. The objectives included the provision of further training for microbiological laboratory personnel from Mediterranean institutions, promoting contact between scientists from different laboratories, and increasing the comparability of results obtained in the microbiological component of MED POL Phase II, by intercalibrating data. The participants determined the concentrations of two major bacterial indicator organisms in prepared samples of natural seawater, by means of two methods, as well as concentrations of the same two indicators in samples of bivalves. Lectures and group discussions were also arranged.

TARGET 20

WATER QUALITY

By the year 2000, all people should have access to adequate supplies of safe drinking-water and the pollution of groundwater sources, rivers, lakes and seas should no longer pose a threat to health.

Index:

ENVIRONMENTAL MONITORING
SEAWATER - standards
WATER POLLUTION - analysis
MICROBIOLOGICAL TECHNIQS
EDUCATION
(1) UNEP
MEDITERRANEAN

Twenty participants from seven Mediterranean countries attended this course and exercise. Most of them were microbiologists either engaged in, or due to be engaged in, monitoring of the microbiological quality of coastal marine recreational and shellfish waters. Lectures and laboratory supervision and instruction were provided by the host institution, the Institut national d'Hygiène, Rabat, Morocco.

Under the terms of the 1976 Convention for the Protection of the Mediterranean Sea against Pollution, and the 1980 Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources, contracting parties have undertaken to establish a marine pollution monitoring system for the Mediterranean Sea area, and to systematically assess as far as possible the levels of pollution along their coasts.

The Long-Term Programme of Pollution Monitoring and Research in the Mediterranean Sea (MED POL Phase II) has been a decisive factor in the development of national pollution monitoring programmes in Mediterranean countries. All these programmes include the determination of bacterial concentrations in coastal recreational and shellfish areas.

Several microbiological laboratories have been upgraded as a result, and new ones established. This has created a need for more trained human resources and for the harmonization of methodologies among the institutions in the various countries to ensure comparable results and to enable regular region-wide assessments to be performed.

Three previous training courses have been held: in 1988 in Athens in the English language, in collaboration with the Environmental Pollution Research Project, Ministry of the Environment, Physical Planning and Public Works; in 1989 in Tunis in the French language, in collaboration with the Institut Pasteur de Tunis; and in 1990 in Malta in the English language, in collaboration with the Council of Europe's European Mediterranean Centre of Marine Contamination Hazards, Valletta, and the University of Malta.

This course and exercise, the last in the series, was convened jointly by WHO and UNEP in the French language, and its objectives included:

- providing more training to microbiological laboratory personnel from Mediterranean institutions participating in MED POL Phase II, by familiarizing them with agreed methodologies for determining the main bacterial parameters in seawater and shellfish;
- promoting contact between scientists from different laboratories, by discussing mutual problems in the application of microbiological techniques;
- increasing the comparability of results obtained in the microbiological component of MED POL Phase II, by intercalibrating data; and
- making recommendations for future training courses.

Results

The participants determined the concentrations of two major bacterial indicator organisms (faecal coliforms and faecal streptococci) in prepared samples of natural seawater, in each case using both the membrane filtration

culture (MF) method and the multiple test tube (MPN) method, as well as concentrations of the same two indicators in samples of bivalves, using the MPN method. They also isolated Salmonella species from the same seawater and bivalve samples. The results obtained showed a range of variation, both between individual participants and between the two methods (MF and MPN) when performed by the same participant. This was ascribed partly to some possible degree of heterogeneity in the samples (although efforts were made to reduce this to the minimum possible) and partly to the relative lack of experience of a number of participants in the analysis of seawater by one or both of the methods employed.

As part of the theoretical component of the course, a number of lectures were delivered on microbiological methodology in seawater analysis, quality assurance and quality control in microbiological analysis, and microbiological sampling of seawater. These were delivered by staff of the host institution.

Group discussions were also held to deal with various methodological and related problems.

Recommendations

No specific formal recommendations were made by the participants as a whole. However, during group discussions, most of them recommended that such courses should be held as frequently as possible in view of their usefulness, especially to personnel requiring familiarization with the latest techniques for the microbiological analysis of seawater. Opinion was divided as to whether the course content should concentrate on bacterial indicators or on pathogens. This divergence was expected, both in view of the participants' varied background and because the importance of pathogenic microorganisms in seawater can be very different in different geographical localities in the Mediterranean region.