



MEDWAVES

MAP COORDINATING UNEP • NEWS BULLETIN PUBLISHED IN ENGLISH / ARABIC / FRENCH N° 20/1990: II

THE QUALITY ASSURANCE PROGRAMME: A GUARANTEE FOR MORE RELIABLE DATA ON POLLUTION IN THE MEDITERRANEAN

Intercalibration exercises, data comparability, reference methods, good laboratory practices: these concepts, with which all experts in marine pollution are familiar, affect the success of the MEDPOL monitoring programme; MESL, headquartered in Monaco, watches over the quality of data from all around the Mediterranean. This strict scientific aspect hides a crucial element of future strategy to combat pollution. Notable progress in this direction has already been achieved according to Mr. Ljubomir Jelčić, senior marine scientist at the MAP Coordinating Unit, as will become clear from the interview published in this issue of MEDWAVES.

The war on pollution is fought by among others some "hidden warriors" – laboratory technicians, chemists, biologists and analytical experts – all of whom spend their time in discovering contaminants in all their forms. In order to obtain a simple arithmetical figure which expresses the mean concentration of hydrocarbons or bacteria in a sample of water, mussel or shrimp taken between Izmir and Mallorca, Trieste and Gabes, the process is long and costly: one has to go to the site, take samples, transport them to the laboratory, store them and analyze them, verify the results and carry out statistical processing of the figures obtained. The public is only aware of what ensues from this chain of events, for instance the prohibition of the use of a certain area for bathing, or a pesticide in agriculture, or even a paint containing TBT. In other words, without our being aware of it, the present and future quality of our everyday life also depends on this large silent network of laboratories which participate in a scientific programme which is based on data which are



difficult to obtain and whose assured quality is of paramount importance. In the Mediterranean, this is the case of the MED POL programme of pollution monitoring and research. Since 1976, when the Barcelona Convention was adopted, this monitoring programme has been an essential element of the Mediterranean Action Plan. In its first phase, from 1976 to 1981, 85 institutes from 16 Mediterranean countries participated. Their coordinated efforts made possible a preliminary assessment of pollution in the Basin. The second phase was initially to extend between 1981 and 1990, but the last meeting of the Contracting Parties, convened in October 1989, decided to extend it to 1995 "in order to allow all countries to participate fully and

to make possible a general assessment of the state of pollution at regional level". This phase has been oriented toward the preparation of "evaluation documents" regarding the main contaminants of the marine environment. It is on the basis of the first regional assessments of pollution that the Mediterranean States

have jointly adopted, at their 1985, 1987 and 1989 meetings, a whole series of measures concerning the quality of bathing waters and shellfish-growing waters, as well as pollution by mercury, cadmium, organohalogens, organotins and used lubricating oils. MEDPOL is now becoming concrete through a series of bilateral agreements concluded between UNEP and the Mediterranean States for the elaboration of national pollution monitoring programmes. Eleven countries have already formally concluded such agreements, 4 have informally done so and 2 more are getting ready to sign. It is thus the whole of the Mediterranean region that is today involved in this cooperative effort which is supported by MAP, on condition that each country submit regularly to the Coordinating Unit at Athens its monitoring data. Obviously such data must be reliable.

ANALYSES FULL OF TRAPS

In order to analyze a sample of either seawater, mussel or tuna, one has to carry out a series of delicate scientific operations on the basis of a rigorous procedure. Let us take the first stage – sample taking of seawater. The choice of site is part of sampling strategy which is of fundamental importance. If the operation is carried out from a boat, the boat itself can be a source of errors, through the contamination of the water in the sample by the paint on its hull, its ballast water or its wastewater. After the sample has been taken to the laboratory, the slightest contamination of the glassware or other equipment can also alter the results. Concerning the analysis *per se*, it is as good as the person performing it and it also depends on the sensitivity of the method selected and its perfect application. For several pollutants concentration values are so low that even minimal errors bring about inordinate distortions in the results.

As MEDPOL developed, it became apparent that the data sent by the laboratories were not homogeneous and that the conditions under which they were collected often cast doubt on their reliability. During Phase I (1976-81) comparative analyses carried out among laboratories on the same reference sample which had been distributed to them (this is what is called “intercalibration exercises”) pointed to considerable variations from one laboratory to the next, from 15% to 50% for cadmium, around 30% for pesticides. Such variations had important consequences, since it was no longer possible to determine with certainty the state of pollution of a particular site or region on the basis of the adopted criterion of environmental qual-

ity, nor follow its development in order to take appropriate measures. Several evaluations of pollutants established for the Mediterranean were hampered by this problem and this lessened the importance of the accompanying recommendations. One can read for instance in the assessment of pollution of the Mediterranean by mercury published in 1987: “Data on mercury concentrations are rare; the validity of quite a few old data is questioned and even concerning recent data, it is not known which fraction of the form of mercury present in seawater was determined... It follows that the results obtained by different authors cannot be compared...” The same type of comment on the gaps and lack of certainty of analyses is repeated with regard to other mineral or organic pollutants. In 1976, UNEP and FAO, recognizing that inadequate control of data quality was likely to compromise the success of the MED POL programme, took the decision to sponsor analytical data quality control. A laboratory based in Monaco was given this task.

THE ROLE OF MESL

This laboratory is called “International Laboratory of marine radioactivity” (ILMR). It is under IAEA, the International Agency of Atomic Energy. To achieve the objective set, this laboratory organized in the last 10 years several intercalibration exercises among the laboratories participating in MED POL and has also sent to the laboratories an engineer to maintain the instruments furnished within the framework of the programme. It is also ILMR that prepared and distributed the reference samples and decided on the appropriate analytical methods for each category of pollutants. The participation of the various laboratories in the intercalibration exercises has increased confidence in the quality of data submitted and made possible the improvement of analytical techniques. However, in 1987 a new section set up within ILMR, called the Marine Environment Study Laboratory (MESL), designed and implemented a programme called “Quality Assurance Programme” which covers all stages that are necessary in order to obtain reliable data: sample taking, fractioning, preparation and purification of samples, intercalibration, reference materials and methods, support for the treatment and interpretation of data, result follow-up. This programme was adopted at the Contracting Parties’ Meeting in 1987. Its implementation was based on experience acquired by MED POL and similar prog-

rammes carried out by IOC, ICES and IAEA, in consultation with GEMSI and GESREM (two specialized expert groups on reference standards and samples). When compared with the preceding programme, this quality assurance is more complete and integrated. Previously, the intercalibration exercises were annual activities where the various laboratories assumed a passive role which consisted in carrying out the analysis of the sample distributed and sending off to Monaco their results. In other words such exercises concerned only the analysis itself and the other stages were totally left out. Currently, the quality assurance programme implies a continuous exercise which includes feedback to the analyst as to the manner in which he carried out his work. Joint exercises facilitate the control of all stages of monitoring. A MESL specialist visits the Mediterranean laboratories to participate in monitoring exercises, from sample taking to data analysis. He points out the possible errors, gives advice and stays in place until he is convinced that once he is gone the staff of the particular laboratory can carry out the work as a matter of routine. He also supervises the preparation of a batch of samples called “of internal reference” which makes it possible for the laboratory concerned to launch later a permanent programme, where staff spends 5 to 10% of its time on the analysis of these samples. Through this practice, the laboratory can itself control the quality of its work and gain credibility and competence. Finally, the MESL programme is complemented by documentation work through the joint publication, by UNEP and the other competent organizations, of reference analytical methods which are revised regularly and brought up to date. Three contaminants are analyzed as a matter of priority: organochlorinated pesticides, trace elements (mercury, cadmium etc.) and petroleum hydrocarbons.

AN EXAMPLE OF THE NORTH-SOUTH COLLABORATION

The technological gap between developed countries and developing countries is reflected in the capacity of their respective laboratories to assess contamination levels in the environment. From the very beginning it was this factor that held up progress in the MED POL monitoring network and made difficult the collection of reliable data for the South and East of the Mediterranean. During Phase I, some laboratories received equipment to carry out analyses. Most of it has become obsolete. The

quality assurance programme is hampered by financial constraints: the announcement that UNEP and the World Bank were going to collaborate in this connection is a hopeful sign. If funds which would be used for the acquisition of equipment did not become available, the progress made in the last 10 years would be lost. That is why the developing countries in the region are a priority item when it comes to quality control. In 1989, MESL has carried out 4 lengthy missions to Morocco and Egypt in order to establish analytical techniques for trace metals and organic contaminants. Two training courses were organized in

Monaco on chlorinated hydrocarbon and petroleum hydrocarbon analysis. Last year 11 persons from 6 countries participated in these training courses organized by MESL. The number will be increased to at least 14 in 1990, whereas missions will be sent to laboratories in Algeria, Egypt, Tunisia and Yugoslavia. Intensive training in Monaco is scheduled for scientists from the above countries, as well as from Libyan and Moroccan laboratories.

This exchange of expertise and the concomitant technology transfer should make possible the harmonization of methods and data submission; it will also

gradually fill the gaps existing in the region by ensuring a better geographic coverage. Let us state finally that WHO has issued guidelines for quality control of microbiological analyses and that, within the sphere of its competence, this organization carries out a parallel action to that of IAEA, such as the training course which brought together in Athens in 1988, 18 participants from 10 Mediterranean countries and gave rise to an intercalibration exercise. The effectiveness of the efforts to combat pollution depends a great deal on the continuation of such assistance and training programmes.

“QUALITY ASSURANCE” IS LIKE IN SPORTS: ONE HAS TO TRAIN 365 DAYS A YEAR TO IMPROVE ONE’S PERFORMANCE

states
Ljubomir Jeftic

Q.- Mr. Jeftic, the “data quality assurance” component is as old as MED POL itself. Can we assess today the improvement it has brought about? Could you put a figure on it?

A.- For the assessment, a percentage would have no meaning at this point, since the improvement fluctuates a lot from country to country and from laboratory to laboratory depending on the season. A regional average would cover up all these differences which are precisely at the root of the Quality Assurance Programme. No one can deny that there has been improvement, but we have set an ambitious objective which we are still far from reaching. On the other hand, to speak of “deception” would not reflect reality. We see a very encouraging evolution, especially in the Southern Coast of the Mediterranean; it is with these countries that we are carrying out an

In the interview he gave to MEDWAVES published here, the senior marine scientist at the Coordinating Unit puts emphasis on the main aspects of Quality Assurance: active participation, internal control, efforts at regional and international levels.

ever more in-depth and complete programme.

Q.- In the past you spoke of “data quality control;” To day, you refer to “Quality Assurance”. Is it not really the same thing or are we talking about two different concepts?

A.- The basic principle remains the same, and it is to obtain reliable data. But as time went by, from a rather passive approach we moved on to an active one which is better translated with the new term. In effect, it is a vast and very complex matter. Several elements must be taken into consideration. Intercalibration isn't but one of them and it is ILMR in Monaco that is responsible for it at world level. Well, if we compare the improvement of data obtained during intercalibration exercises, we see that the Mediterranean laboratories have made better progress than other laboratories in other parts of the world. There are also specific figures and this is an indirect an-

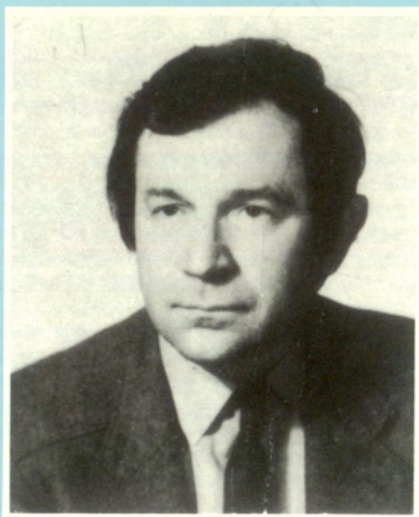
swer to your first question. However, let me repeat that at the level of the various laboratories, there are those that make a real effort, others that lag behind. It is the same in any kind of community, isn't it? Scientists are no exception.

Q.- *In the reports of the Contracting Parties meetings there is often reference to the fact that laboratories do not participate as much as they should in intercalibration exercises. What do you think is the reason for this? Lack of motivation? Insufficient publicity for the programme? Financial problems? Or perhaps negligence?*

A.- The way you put the question makes it easier for me to answer: It is no doubt a mix of all these elements... Quality Assurance means first and foremost rigorous and disciplined work not just 10, 60 or 150 days a year but 365 days! If the staff at a particular laboratory thinks that, all right, this week we participate in the data quality assurance programme, no one smokes, glass and instruments are all clean, but next week everybody is back to their bad habits, then you realize that the game is lost from the beginning. It is exactly like in the arts, in music, in sports: if you let practice go, performance will inevitably suffer. You mentioned financial problems and more concretely lack of equipment. This is another problem that we attempt to solve by organizing a maintenance system. An engineer from Monaco goes around the various Mediterranean laboratories. It is not really Quality Assurance but without this service the programme would not really progress.

Q.- *Speaking of financial matters, what is the budget of Quality Assurance?*

A.- If you put dollar figures to Quality Assurance you risk giving either very high or very low sums; for instance, in order to develop a good reference method for sample analysis you could spend 1 million dollars or 100,000 dollars depending on how sophisticated your method is or the contaminant involved. The methods are developed in the best laboratories in the world, USA, UK etc. We take these methods and give them to the va-



Ljubomir Jetic has been Senior marine scientist at the Coordinating Unit in Athens since 1985. Since 1987 he has also been the coordinator of the team of experts on the study of the impact of climatic changes in the Mediterranean. From 1981 to 1985 Mr. Jetic was Director of the Service of Planning and Environmental Protection of the Committee on Building, Housing and Environmental Protection of the Socialist Republic of Croatia (Yugoslavia). He has been a Professor at the University of Zagreb and several times consultant to UN organizations.

rious Mediterranean laboratories. This is now done by IAEA and other organizations such as IOC, FAO, WHO etc. Well, how much does this cost us? It would be wrong to say 1 million dollars and equally wrong to say 0 dollars. Let us say that we profit from the enormous investments made in certain countries and even of the mistakes that have sometimes gone with such investments.

As to MAP, the budget includes \$140,000 a year for Quality Assurance. However that is not all. Because in other lines of the budget you'll find other sums, quite considerable, for practical training, for grants, training courses; all of that obviously even though indirectly serves Quality Assurance. We also grant assistance to scientists

to participate in meetings. In conclusion I would say that the effort invested is worthwhile.

Q.- *Let us assume that this programme is going to be a total success. Quality Assurance could then be abolished?*

A.- Obviously not. Everything I said above about doing one's best for 365 days a year shows that Quality Assurance is a continuous, permanent process. Let me take again the example of sports: a recordman that stops training risks not setting any more records. With the help of our friends from Monaco, laboratories can assemble their own batches of samples which we call "of internal reference". These are homogenized, normalized samples. In this way they can obtain a certificate of international quality. O.K. But after that, these same laboratories must exercise their own control. If for instance a concentration on a sample must be 73 and it is very much above or below this number, then there is something wrong somewhere in the operating procedure. Each laboratory must know what it is and how to correct it. This internal control is something we emphasize a lot nowadays. It is crucial.

Q.- *Is the effort extended sufficient? Or should some other MED POL activities be cut back and Quality Assurance given top priority?*

A.- Top priority, yes, that's evident. However I would refrain from saying that other activities should be cut back. I would rather say that all the other activities should in the end be absorbed by Quality Assurance. In other words, MED POL in its entirety should become a large Quality Assurance programme at the level of monitoring and research. This is what we try to do today: introduce Quality Assurance everywhere, but without prejudice to the other programme components. This is a very ambitious and crucial objective. In conclusion I would like to make something clear: it is not just the business of MAP through ILRM/MESL, Monaco. All organizations that deal with environmental issues are involved in this effort which goes beyond the regional framework and is of international scope.

On the occasion of the World Environment Day and the Mediterranean Environment Week

MR. ALDO MANOS, MAP COORDINATOR REVIEWED THE STATE OF THE MEDITERRANEAN BEFORE THE FOREIGN PRESS

In a press communiqué released simultaneously in Geneva and Athens, Mr. Aldo Manos, Coordinator of the Mediterranean Action Plan, reviewed the problems of Mediterranean tourism in 1990 and the solutions proposed. Then he reviewed the more general environmental problems of the region before the foreign press correspondents accredited in Greece. Through the media representatives, the Director of the Coordinating Unit was addressing not so much the Mediterranean countries which are already aware of the pressures put on their sea and physical environment, since they experience them every day, but public opinion in the Northern and Western European countries and in North America, since it is they who form the bulk of Mediterranean tourism.

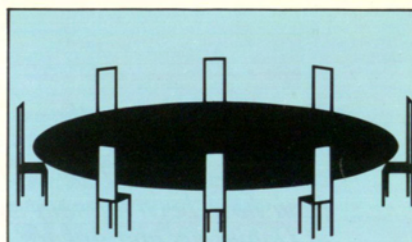
"In the Mediterranean, tourism reflects all environmental aspects" observed Mr. Manos in his introduction and added that the region is always in first place worldwide in the number of tourists attracted, with 120 million expected in 1990. While denying that he is keeping quiet about the seriousness of the threats hanging over the Mediterranean, Mr. Manos reviewed the measures and positive actions carried out in the last 15 years for the protection of the Mediterranean. While its "impending death" was being announced a few years back, it is a fact that the several important battles fought in the past against pollution have been won and progress has been made perhaps slowly but surely. "Perhaps", Mr. Manos added, "I ought to say 'surely but too slowly'. UNEP can not go any faster than the sovereign States of the Mediterranean Plan wish to go. If the peoples of the Coastal States put pressure on their governments, we will move faster".

However, antipollution measures cost money and in certain cases precise figures are available: a treatment plant for urban sewage for instance, which according to one of the objectives of the Genoa Declaration should be available in each city of over 100,000 inhabitants, costs 2,000 dollars per person. Where will the necessary funds come from? Even if the MAP budget remains modest and is suitable only for support and coordination actions, the fact that the World Bank, the European Investment Bank and

the EEC (through the MEDSPA programme) are entering the fray opens new perspectives of financing and should make possible the promotion of activities which had been left aside for lack of funds. Moreover, the cooperation among coastal states is strengthened as is clearly shown by "The Adriatic Initiative" and the fact that Albania will soon sign the Barcelona Convention will bring all members of the Mediterranean family into the fight against pollution in the area. Referring to tourism which was the topic of this press conference, Mr. Manos warned against alarmist approaches: "It is not", he said, "the number of tourists, not even the annual rate of growth of tourism that is of greatest concern to us. After all, the region's total receiving capacity is 35 million beds, which would amply fill the needs of the 120 million tourists visiting the area currently and even the needs of the 350 million expected for the year 2000, on condition of course that they wouldn't all come at the same time, nor go to the same beaches. In effect most of the problems spring from the seasonal character and the geographic concentration, since the vast majority of tourists come in June, July and especially August and congregate on the coastal strip". Thus, Mr. Manos and other UNEP officials believe that a solution is already outlined. "The authorities, both national and local in Europe and abroad could be a lot more flexible in terms of school vacations. As the nature of industrial production changes and as services become more important, it will no longer be necessary to close down thousands of industrial plants at the same time (i.e. in August)".

Certain governments of industrialized countries have already started spreading out vacation times; there are also the various alternatives of a more diversified type of tourism which takes advantage of the resources of the hinterland and combines sports events with off-season cultural activities.

In conclusion, Mr. Manos pointed out that the Mediterranean Action Plan is only 15 years old. "In the scale of history which is several millennia old, this is a very short period. The results already obtained are all the more convincing and allow us to be optimistic for the years to come".



THE MAP CALENDAR OF MEETINGS

Intercalibration and training course on determination of microbiological pollution.	3-8 Sept. Malta
Meeting of the Bureau of the Contracting Parties.	6-7 Sept. Rome Italy
Consultation meeting on environmental transformation of chemical contaminants.	24-28 Sept. La Spezia Italy
Consultation on guidelines for Monitoring of land-based marine pollution sources.	27-29 Sept. Istanbul Turkey
Regional Seminar on Liabilities and Compensation.	8-12 Oct. Malta
XXXII ICSEM Meeting. X Workshop on pollution in the Mediterranean	15-20 Oct. Perpignan France
Workshop on the Planning, Designing and Implementation of Conservation Projects in Historic Sites.	22-25 Oct. Barcelona Spain

MEDWAVES is published quarterly by the Co-ordinating Unit for the Mediterranean Action Plan in Arabic, English and French. It is intended as an informal news bulletin and does not necessarily reflect the official view of MAP or of UNEP.

News, articles and interviews may be freely reprinted with or without reference to MEDWAVES. However signed communications should be reprinted only with permission from the author.

If you would like to propose an article on a subject related to marine science, please address it to: Gérard Pierrat, Editor. MEDWAVES, Co-ordinating Unit of the Mediterranean Action Plan, 48 Vas. Konstantinou Ave., 116 35 Athens Greece. Tel. (00301) 7236.586, Telex 222 611 MEDU-GR.

SIGNING OF AGREEMENTS FOR THE SYRIAN

The agreements on the management of the Syrian coastal region and the Bay of Izmir have been formally signed at Damascus and Ankara respectively. This is an important step in the re-focusing process of the Mediterranean Action Plan.

From the 4 coastal area management programmes launched in 1988, 2 were recently the object of formal agreements and this opens the way for their implementation and follow-up. On June 18, the agreement concerning the planning and integrated management of the Syrian coastal region was signed in Damascus by the Minister of Environmental Affairs of Syria, Mr. Abdel Hammed El Munajid and by Mr. Manos, MAP Coordinator, representing UNEP. The ceremony took place in the office of the Syrian Prime Minister, Mr. Mahmood Al-Zoubi who received the UNEP delegation. Two days later, the document concerning Izmir Bay was signed at Ankara, Turkey by Mr. Halit Kara, State Undersecretary for the Environment and Mr. Manos. In both countries, the signing was given a large coverage by the national press and television and was also the occasion for several contacts between the MAP/UNEP officials and national authorities and experts.

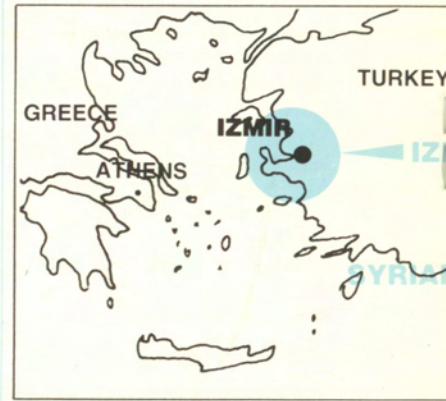
Since MEDWAVES has already presented the other two programmes carried out by PAP since 1988 (Kastela Bay, Yugoslavia No. 12, I/1988, and the island of Rhodes, Greece, No. 13, II/1988) we propose to outline here the main axes of the agreements signed recently with Syria and Turkey. It should be remembered that the coastal area management programmes are components of a general policy of re-focusing the Action Plan toward integrated planning and environmentally rational management of the Mediterranean coastal areas. The main principles of this re-focusing were stated by the Executive Director of UNEP in a document submitted to the 6th Meeting of the Contracting Parties last October. The procedure for the establishment of such programmes is well defined: a Mediterranean State proposes a particularly sensitive coastal area; if it is adopted by MAP/UNEP then a preliminary phase begins which includes identification of the main problems of the area, definition of options for their solution and the formulation of a draft programme. A joint team constituted of MAP and PAP experts on the one hand and national and local experts on the other is entrusted with the preparatory work through field studies and technical meetings at the PAP Centre in Split. All planning instruments are used, especially impact studies and the application of the GIS geocoded system. In effect it is the development of a priority action launched in 1984 and given great impetus by the refocusing. The philosophy behind these coastal area management programmes is to help the Mediterranean States develop their coastal areas while

respecting the environment and overcome the most serious problems through national and international funding. In this effort all regional activity centres and MAP components are involved: the Blue Plan through the elaboration of scenarios, the Tunis Centre to recommend Specially Protected Areas, the Malta Centre through the elaboration of contingency plans for cases of hydrocarbon spillage, the legal element by virtue of the implementation of the Convention and the Protocols, MED POL through monitoring and finally all the other Priority Actions which have focused on specific areas of planning: water, soil, forests, historic sites, renewable sources of energy, tourism etc. This preliminary, interdisciplinary phase concludes with the drafting of a document which is in fact the agreement to be signed by MAP/UNEP and the government of the State concerned. A workplan, accompanied by a timetable and a budget are established for each biennium. The programmes concerning the Syrian coast and the Bay of Izmir have this in common that they affect large populations (more than a million in each case) whose fast rate of increase exerts heavy pressure on the environment.

THE SYRIAN COAST: A CROSSROADS THREATENED

By choosing the Mediterranean coast as a pilot area for integrated planning, the Government of the Syrian Arab Republic wanted to emphasize the most prosperous region of the country, which however is also the one most threatened precisely because of its prosperity. The figures explain this: the coastal region is 185 km long and 30 km wide and its total area represents only 2% of the national territory. In terms of population however it represents 11% of the total, or 1,200,000 people out of 10,600,000 for the whole country. The part it plays in national production gives an idea of its importance in the agricultural and industrial sectors: 90% of citrus fruit, 50% of tomatoes/olives, 63% of cement, 50% of installed electric power capacity, 50% of oil refining capacity.

This coastal strip with Mediterranean climate contrasts with the Eastern part of the country which is a large desert plateau which belongs to the Euphrates basin. It is thus a transition area between the Mediterranean Sea and the arid regions of the interior, between Asia Minor to the North (Anatolia and the Taurus Mountains) and the Arab world to the South. The mild climatic conditions prevailing favour intensive food crop farming which explains the attraction that the coast has traditionally had for the people. Even today, there is a strong trend of population movements from the poorest regions of the country toward the coastal area in a sort of internal migration. The most important feature of the last 30 years has in effect been the population increase: the 490,000 inhabitants in 1960 increased to 1,200,000 in 1988. Of course the increase can be partly explained by a decrease in the mortality rate due to spectacular improvements in public health and



nutrition as well as to an always high birth rate; however it mostly reflects the concentration of people in the urban centres where numerous industrial activities are established; oil refinery and thermo-electric power plant of Banias, cement factories at Tartous, development of the two main ports of Lattakia and Tartous which are the administrative centres of the two "mohafazas" (i.e. provinces) of the coastal region. This demographic boom which is an expression of the privileged situation of the region has by the same token aggravated the problems and especially the pressures on the environment. The old sewerage systems can no longer cope, there are no waste treatment plants or submarine outfalls and the ever increasing illegal dumpings of urban waste, and the industrial effluents also discharged without any significant control have all contributed to a critical rise in the levels of marine, atmospheric and aquifer pollution. Thus the objectives to be achieved within the next few decades are a) to ensure that the coming generations whose numbers are going to increase will have high employment levels and b) that damage to the environment decreases substantially. In the document of approximately 100 pages, established by Syrian experts as well as PAP/MAP experts, all aspects of integrated and environmentally sound development for that region have been dealt with: water resources, soil occupation, the disposal of wastes, conservation of natural resources and the future of tourism among others. Among the urgent measures proposed, we can cite the establishment of a protected coastal strip of at least 150m where all construction will be banned, improved control over illegal construction due to intensive urbanisation, the protection of water springs and accumulation lakes, the establishment of a fresh-water sanitary control system, the monitoring of the quality of bathing waters and the preparation of an oil spillage contingency plan. Other measures are proposed to stop the on-going wetland drying at for instance Buhairat Al-Laha and to put an end to the on-going sand extraction in the dune chain areas mainly south of Lattakia.

Tourist development: cautious and discerning

The Syrian coast has always attracted

N COASTAL REGION AND THE BAY OF IZMIR



conquerors since it has always been a remarkable link between Egypt, Mesopotamia, Asia Minor and the Arab Peninsula. The modern "conquerors" are of course the tourists (approximately one million per year) who come to admire the natural beauty of the area and to visit certain archaeological sites, proof of the various contrasting civilizations which flourished in successive waves in this part of the world: Phoenician, Egyptian, Hittite, Philistine, Aramean, Assyrian, Greek, Seleucid, Roman and Byzantine, down to the Arab conquest in 634 A.D. The Crusades gave rise to the counter-crusade led by Saladin. The Mamelouks, Bonaparte, the Ottoman rulers all came one after another. To the East of Lattakia lies *Aladin's fortress* dated to the beginning of the 12th century. To the North, the site of *Ugarit*, discovered in 1928 has relinquished the remnants of one of the most important Phoenician cities of the 2nd millennium. The first settlement goes back to the 7th millennium. In two very large palaces, archives and literary texts were found (written on clay tablets) which reveal an extraordinary diversity of languages and 5 writing systems. At the centre of the city of *Nableh* there is a Roman theatre and in the city of *Tartous* there is a fortress, the restoration of which is the object of a plan adopted recently.

Even if tourist development has followed pretty much the trends in other Mediterranean countries (409,000 tourists in 1970, 986,000 in 1986, with a peak of 1,200,000 in 1980), the Syrian Government prefers to act cautiously in this connection. This choice is reflected in the agreement concluded between UNEP and Damascus. The recommendations include rejection of all large projects which have to be completed in a short time, infrastructure projects to be sited only in "resistant" environment, never in special eco-systems such as wetlands, dunes, cliffs - which are to be protected, harmonization of construction with the physical and cultural framework. Syria, if compared with other Mediterranean countries, is lucky to have been relatively spared the ravages of mass tourism, with the exception of certain coastal sites such as Tartous. It is thus possible to profit from the disastrous lesson of the 60's and 70's and to avoid the mistake of uncon-

trolled tourist development with its all too well known environmental impact as well as the consequences for the societies concerned and their traditional values.

FOR IZMIR, TWO KEY WORDS: WATER TREATMENT AND RESTORATION OF THE QUALITY OF THE BAY

Here too the demographic boom, urbanization and industrialization have, in the last 30 years, laid an insidious trap for the Bay of Izmir. The city occupies the inner part of the bay and stretches its tentacles around the coastal area. Each year, between 1965 and 1988, the population has increased by between 50,000 and 80,000. This means that the Greater Izmir area with its 10 municipalities which are the neighbouring suburbs, has now more than one and a half million people. It is a highly dynamic city, the first commercial centre of the country and the second biggest harbour after Istanbul; it was also second in population but lost out when Kemal Attaturk picked Ankara to become the capital of modern Turkey in 1923. The economic prestige which it inherited from a very long past is symbolized today by the International Fair held there each summer. Over 1500 industrial enterprises of Izmir are responsible for 10% of the industrial output and 15% of the production exported from Turkey, especially in the leather, textile and agricultural sectors. However the productive lands in the back of the city complete the picture of this Protean city and contribute 15% to the national agricultural output.

Izmir is finally one of the main tourist areas, not so much for its own interesting features, but especially as a starting-off point for excursions to the famous sites which dot the Aegean coast: Foca (Phocaea), Pergamum and Troy to the North, Ephesus, Miletus, Halicarnassus to the South. The sea resorts near Çeşme offer fully developed spas. Unfortunately all these advantages, this vitality and string of successes have had a negative impact on the environment. Izmir Bay receives an ever growing pollution load and is now one of the most critically affected areas in the country. It is not deep enough for an easy exchange and self-cleaning process of the water masses. For several years now, eutrophication has appeared regularly with the concomitant phenomena of anoxia and plancton bloom ("red tides"). The Inner Bay is heavily polluted; pollution, which increases from the Outer Bay inward, is fed by various sources: untreated urban sewage and industrial waste, heavy maritime traffic, water courses, soil erosion, run-off from surrounding agricultural areas (pesticides). Thus Izmir Bay is a most suitable area for integrated planning. Since the launching of the pilot project in 1987, the Turkish authorities and PAP/MAP officials have defined (during many expert meetings) the following long term objectives:

- to propose a development concept of the area harmonized with the receptive capacity of the environment;
- to establish a monitoring programme of the environment on a permanent basis;
- to set up a data base of all necessary environment and development indicators;
- to provide training of local experts on various aspects of the planning and management procedures.

Local authorities will play the main role in the various actions stipulated in the agreement by constituting the core of each work team, whereas the PAP/MAP experts will intervene as scientific advisors. The World Bank will also participate in the programme. UNEP, in addition to the diversified contribution of MAP will also involve itself through GRID: this is the Global Resource Information Database, a tool of integrated management in computerized form, the value of which was proven when used in other parts of the world (Kenya, Peru, Thailand).

Treatment station in Izmir: a priority which will give rise to other priorities

It was in 1969 that the Turkish authorities started thinking about a wastewater treatment plant for the Greater Izmir Area. After several revisions of the initial concept which were necessary because of the development of the state of pollution in the Bay, it was decided to use a treatment plant which would combine an anaerobic and an aerobic pond system to be located in the NE area of the Bay, in the Old Gediz River delta area, south of the Cigli airport; the treated effluent will initially, through the Gediz river, be carried out to the Middle Section of the Bay, until a submarine outfall is installed which will bring the treated effluent to the Outer Bay and the open sea. The treatment plant will initially serve 2.5 million people and 4.8 million by the year 2020 and is the first stage of a large programme bearing the title "Izmir sanitation project".

Thus the treatment plant is priority No. 1 which points to other priorities contained in the UNEP/Turkey agreement:

- study of the assimilative capacity of Izmir Bay which will lead to an evaluation of the impact of the station effluents on water quality and to the definition of the final concept of the proposed outfall;
- study of the recovery of the Inner Bay. The treatment plant will bring about a considerable decrease in the levels of pollution of the Bay, but it will not totally eliminate pollution because of diffuse sources, run-off etc. It will therefore be necessary to study carefully the processes of recovery of the Bay in order to establish the long-term trends.
- study of environmental impact of the submarine outfall which will carry away the treated urban and industrial effluents. It will lead to an assessment of the impact of the outfall on the marine environment with a view to eliminating or at least softening such impact.

THREE IMPORTANT MEETINGS HELD AT THE MAP COORDINATING UNIT

May 2-3

CONSULTATION WITH NGOS

This unofficial meeting is a step in a long evolution: the increasing acknowledgement by governments and international institutions of the role of Non-Governmental Organizations (NGOs) in environmental protection. Already in 1977, in a report of a meeting of the Mediterranean Coastal States convened at Split, an appeal was launched to NGOs. However it was only in 1985 that NGOs were officially mentioned as partners to governments in a text of wider scope, the Genoa Declaration. This development

was legally sanctioned at the Contracting Parties Meeting in October 1989 when the Statutes were changed to allow NGOs to send representatives to the technical meetings of the MAP as well.

The NGOs present were independent associations especially active in the Mediterranean; Greenpeace International, Marevivo, the European Environment Bureau, the Yugoslav Association for environmental protection, Friends of the Earth International, Association for International Studies, the Regional French Association URUN. Each organization presented its goals and activities. Then, participants examined a report established by CERIC of the Aix-Marseille University on the content of the message of the NGOs and how it is transmitted. The most urgent environmental problems

in the Mediterranean were discussed: reception facilities, treatment plants, threatened species, forest fires, atmospheric pollution. The meeting ended with the examination of the possibility to set up a forum of NGOs active in the protection of the Mediterranean Sea, a proposal with which everybody agreed. This forum, which is being discussed in the meantime, would have, according to participants, several advantages: better exchange of information among NGOs, dissemination of objectives, mechanisms and MAP activities and giving a more official character to the activities of NGOs, concerning the objectives approved by Mediterranean governments. Finally, the Forum would participate in the preparation of the 1992 UN Conference on environment and development.

7-11 May

EXPERT MEETING ON OFFSHORE PROTOCOL

In September 1985, the Contracting Parties to the Barcelona Convention at the 4th Ordinary Meeting held at Genoa had asked for the preparation of a protocol on the pollution of the Mediterranean Sea against pollution from the exploration and exploitation of the continental shelf, of the seabed and

its subsoil. A technical consultation held in September 1986 had examined the main points of this new legal instrument, called offshore protocol, and the Secretariat of the Convention had asked the International Juridical Organization (IJO) to prepare a draft text. This is the draft that the Mediterranean States were to examine at their meeting last May. The governmental experts and the observers of organizations present (FAO, E & P Forum, IJO) went through the text, article by article and made several suggestions for its clarification; several amendments were proposed and adopted. The Working Group decided to submit to the

Contracting Parties this amended text which contains 30 articles and two annexes and regulates offshore exploration and exploitation in order to protect the marine environment. The text will be presented to the next meeting of the Bureau in Rome, Sept. 6 and 7, 1990; this in turn would authorize the Executive Director of UNEP to convene the plenipotentiaries' conference entrusted with the adoption and signing of the definitive text. This would then be the fifth Protocol to the Barcelona Convention and would complete the legal arsenal which started being assembled in 1976 to combat marine pollution.

28 May - 1 June 1990

JOINT MEETING OF THE SCIENTIFIC AND TECHNICAL COMMITTEE AND OF THE SOCIO-ECONOMIC COMMITTEE

This was a regular meeting of the two technical committees which review the progress of the programme and prepare the decisions of the 7th Ordinary Meeting of the Contracting Parties in 1991. However there was a new element, that of the presence of NGOs as observers.

Mr. Aldo Manos, MAP Coordinator reviewed the progress accomplished in the various programme components. He informed the meeting that the Albanian government had officially decided to sign the Barcelona Convention, the confirmation to be made by Spain, as depositary

State. Mr. Manos also referred to the Environment Charter elaborated last April at Nicosia, Cyprus at a meeting of Environment Ministers of the Mediterranean States and of the EEC Commissioner responsible for the Environment.

The EEC delegate clarified certain points in this "Nicosia Charter" which stipulates technical action, information activities, awareness campaigns and training activities, all accompanied by a timetable.

Concerning the assessment of the state of pollution of the Mediterranean Sea by organophosphorus compounds and proposed measures, the meeting was of the opinion that reliable data on production figures, levels measured in the environment and their impact were still lacking. The Coastal States were thus invited to submit additional information by September 1990 in order to carry out a more trustworthy assessment and propose new measures to the next meeting of the Committee which eventually would

be submitted for adoption to the Contracting Parties at their Meeting in 1991.

On draft Annex IV (airborne pollution from land-based sources) to the LBS Protocol, the meeting decided to defer decision. The Parties will submit their comments on the technical and legal aspects of the draft Annex which will be reviewed again before it is eventually adopted in 1991.

In conclusion, the Coordinator of MAP noted, among other positive developments of the past few months, the progress of the Adriatic Initiative which is moving towards its functional stage, the publication of the Blue Plan in English and the more precise definition of the coastal areas management programme. As regards the two matters on which decision was postponed, i.e. organophosphorus compounds and Annex IV, the intervening time should make possible the improvement of the texts and thus facilitate their adoption at the 1991 session.

NEWS OF THE REGIONAL ACTIVITIES CENTRES

THE PRIORITY ACTIONS CENTRE (SPLIT)

The most recent activities of RAC/PAP consist of a training course on water resources management which was organized in Malta in March and another on environmentally sound planning of energy resources (LEAP) organized in the Split Centre in April.

The first training course is within the framework of the Priority Action "Water Resources Management" within which other PAP seminars had been previously organized (Palma de Mallorca, October 1986; Malta, December 1986) and formulated recommendations for the organization of several projects on the methodology of water resources management and the acquisition of new knowledge in this field.

It is on the basis of one of these recommendations that the government of Malta proposed that its territory be considered a pilot area for the formulation of a mathematical model on water resources management. A draft project "A Study of the freshwater resources of Malta" was prepared with the collaboration of Maltese experts and submitted for approval to the government of Malta; the government approved it and the EEC offered financing. On 7 June 1989 an agreement was signed at Valletta by the Bureau de recherches géologiques et minières (B.R.G.M.), France which undertook the implementation of the project and the Maltese Secretariat of Water and Energy. RAC/PAP will continue to support the project as consultant to the Maltese government.

The project will last 4 years and within its framework there will be training for engineers from Malta and other Mediterranean countries. This year a course was organized in Valletta between 5 and 17 March by the Split Centre and the Water Service, exclusively for Maltese engineers. The course dealt with the content of the project, the methodology of water resources management, qualitative and quantitative evaluation methods for water, software for project implementation and fundamentals of hydraulics and subterranean hydrology.

The other course on LEAP was organized in collaboration with the Stockholm Environmental Institute - Boston Centre. LEAP stands for long term planning of energy-environment alternatives. 25 participants from Greece, Hungary and Yugoslavia attended this course as part of a series of courses on renewable sources of energy organized by the Split Centre which deals with environmentally sound planning methods.

The Swedish Institute has used the LEAP planning for the last 8 years in a number of regional and national studies. LEAP is a flexible system of storing and analysis of data to a high degree of detail on various types of transformations and uses of energy, including land use and biomass-derived energy. By modifying certain parameters, the model can be used to analyze the impact of various political interventions on national energy demands and thus on energy needs. The LEAP system is in effect a series of 8 different computer programmes which can be used independently or in conjunction as one wishes. An interesting application of the system is that of analyzing emissions of various pollutants in different countries and obtaining several scenarios concerning reduction of such emissions.

Knowledge acquired by the participants in this training course held between 2 and 6 April 1990 will be used especially in the coastal areas management programmes in Greece (island of Rhodes) and Yugoslavia (Kastela Bay) as well as in the activities of the national integrated planning in Hungary and Yugoslavia.

THE BLUE PLAN CENTRE (SOPHIA ANTIPOLIS)

In recent months, most of the Centre's activities concerned the methodological preparation for the application of the approach

through scenarios to the integrated coastal management: the Sophia Antipolis Centre also maintained contact with PAP about the pilot area projects through the exchange and study of documents.

It is in this framework that a meeting was held in April at Sophia Antipolis to deal with an in-depth analysis of the paradigm area Cannes-Grasse-Antibes (French Riviera) along with local officials. Following a previous mission carried out in February 1990, an important meeting was convened at the Centre on June 17 and 18 with three representatives of Turkey and various Blue Plan experts for the development of the project of integrated management of the Iskenderun Bay, within the framework of close collaboration between the Blue Plan and the Turkish national team responsible for the project. During the meeting the organization of work was defined; it is to be divided into 3 phases; the first for the collection and processing of economic and environmental data, the second for the elaboration of local scenarios and the third for the formulation of recommendations for specific measures concerning this coastal area which is especially threatened.

Two other missions extended the scope of activities of the Blue Plan to the South Coast: in June 1990 a visit by Mr. Grenon to Morocco to present the results of the Blue Plan scenarios to Mr. Kabbaj, Moroccan Minister of Equipment and in the same month a visit to Sophia Antipolis by Prof. Ghabbour of Cairo University to discuss with the Blue Plan team certain environmental aspects of agricultural development in the countries of the Eastern and Southern part of the Basin. On the other hand, Mr. Glass, Director of the Centre visited Genoa, Italy to promote cooperation with the Centre Genova Ricerche on the data bases and information systems.

(See also "Books" for the publication of the Blue Plan Report in English).

REGIONAL MARINE POLLUTION EMERGENCY CENTRE (REMPEC, MALTA)

REMPEC published in June the proceedings of the seminar held at its premises between the 22nd and 26th May. This document is currently available in English only: "Proceedings of the Workshop on combatting accidental pollution of the Mediterranean by harmful substances" and contains the papers given at the seminar and the conclusions and recommendations approved. The French version will be published shortly.

Since the end of July, the REMPEC team has had a new member in conformity with the extension of the scope of its activities to include harmful substances. It is Mr. Stefan Micallef, a chemical engineer who used to be with the National Institute of Scientific Research of Canada. The arrival of Mr. Micallef is a step in the direction of extending the activities of REMPEC decided by the Contracting Parties in October 1989. He will be responsible for, among other things, putting together a data base on chemical substances.

Among future activities the Malta Centre will organize between 5 and 12 October 1990 a seminar on financial matters, specifically on liability and compensation in accidents which cause pollution by oil or other harmful substances. This seminar will be held in Malta in the premises of the Centre and will give participants an overview of liability and compensation in case of accidental pollution. The Seminar will also discuss and approve conclusions and recommendations concerning the legal, administrative and financial aspects of mutual assistance. Finally, participants will look at the progress achieved by IMO in the drafting of an International Convention on preparation and intervention against hydrocarbon pollution (OPPR Convention) and the draft offshore protocol (see p. 8 of this issue).

ECHOES OF MEDITERRANEAN COUNTRIES

Meetings and colloquia scheduled

Workshop on risk assessment in the case of major maritime accidents, Malta, 22-26 Oc- tober 1990

This workshop organized by the Euro-Mediterranean Centre on the risks of marine contamination will examine and define the role that ecotoxicologists are expected to play in the establishment of contingency plans in the case of risks for the marine environment, as well as in the effective control in accidents involving marine pollution. (Workshop in English; write to Prof. Victor Axiak, 9 Euro-Mediterranean Centre, St. Paul Street, Valletta, Malta. Tel. (0356) 224067.

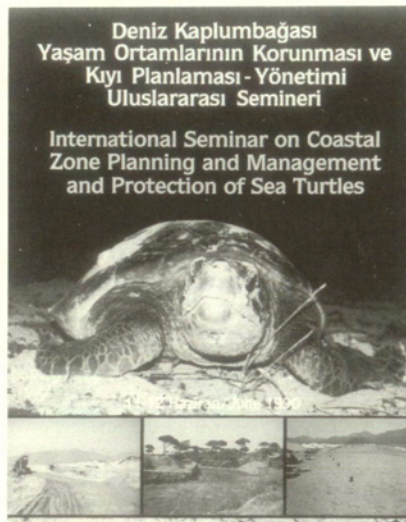
Colloquium on Mediterranean environmental problems, Lyon, France, 20-21 November 1990.

The International Environment Institute (IEI) is organizing this colloquium in collaboration with the XI General Directorate of the Commission of the European Communities and the French Secretariat for the Environment, within the framework of an International Fair on water/air/wastes/noise technology (POL-LUTECH Fair). The colloquium will deal with most of the problems of development and pollution in the Mediterranean and will conclude with a Round Table discussion on the objectives and means of technology transfer around the Mediterranean Basin. (Contact IEI, 2 boulevard de la Roche-du-Roi, BP 128, 73101 Aix-les-Bains Cedex, France. Tel. (33/79 88 20 00).

International Seminar on planning and management of coastal areas and the protection of marine turtles. Ankara, 11-12 June 1990

This seminar was organized under the aegis of the Society of the protection of nature (DKHD) of Turkey and the Turkish Under-Secretariat for the Environment. Several international experts dis-

cussed planning and management strategies for coastal areas and the marine turtles throughout the world. On the other hand, Turkish scientists gave information on the situation in Turkey in these two fields. In effect Turkey is carrying out several activities for the protection of species and special areas. Three new specially protected areas were set up in 1989, one of them in Fethiye on the Mediterranean coast between Marmaris



and Antalya. Fethiye is an ancient site near a bathing station located in a small bay; among the best preserved findings there are tombs cut into the rock and Lycian sarcophagi. Three more protected areas were created in 1990; one of them is at Patara, east of Fethiye, an important ancient harbour in Lycia covered by sand, which is no longer near the sea. In addition to the governmental actions, there is fruitful cooperation with national and international NGOs. The main Turkish NGO at national level is the Society for the protection of nature which targets its action on marine turtles and birds. Work carried out with World Wildlife Fund International defined the most important sites for the protection of marine turtles; there are 17 such sites. Immediately afterwards, the above mentioned site of Patara was declared a protected area.

MEDASSET Headquarters opening

The Mediterranean Association for the protection of marine turtles (MEDASSET) opened its central office in Athens on 30 May 1990. Mrs. Lily Venizelos, president and founder of the As-

sociation, well known for her activities in Greece for the protection of *Caretta caretta*, and the 5 members of the Steering Committee, all international specialists in the field, received their guests in the new premises of the Association. The Minister for the Environment of Greece, the Coordinator of MAP and the ambassadors of the countries represented in MEDASSET were present. The Association was founded in 1988 and has had considerable success in pursuing its goals, the principal of which is to impart objective information about the necessity to protect the marine turtles in the Mediterranean. In this connection, the small but dynamic team of MEDASSET promises to further coordination among the various research programmes, which are not always drawn along parallel lines, and the too general declarations of intent, by involving decision makers and organizations concerned. (MEDASSET, 1 (c) Likavitou, 106 72 Athens, Greece, tel. (1) 36 135 72).

MAP ACTIVITIES

MAP/SPA Mission to Libya

In Libya, near El Beyda there is the national park of El Kouf, one of the Mediterranean Specially Protected areas. In this eastern part of the country there are also the ruins of the ancient city of Cyrene, a Greek colony founded in 611 B.C., which is one of the 100 historic sites. Starting in 1988, contacts were forged between the Libyan authorities and SPA/RAC, Tunis in order to determine other potential protected areas. A discovery mission took place in Cyrenaica (between the Gulf of Sirta and the Libyan-Egyptian border) from the 15th to the 22nd June. It offered the opportunity to make contacts with Libyan officials and environmental experts and made clear the importance of this part of the coast which is 1000 km long and whose environment has remained relatively untouched because the population is sparse, there is no tourism and very few maritime activities. The turtle population is quite large, protected from human interference; *monachus monachus* is present in at least two sites and a small islet in the Gulf of Sirta is the only known Mediterranean site where Strene Sandwich (a type of marine swallow) nests. A number of sites will be proposed for protection and a new mission will visit the remainder of the Libyan coast (an additional 1000 km).

MAP PUBLICATIONS

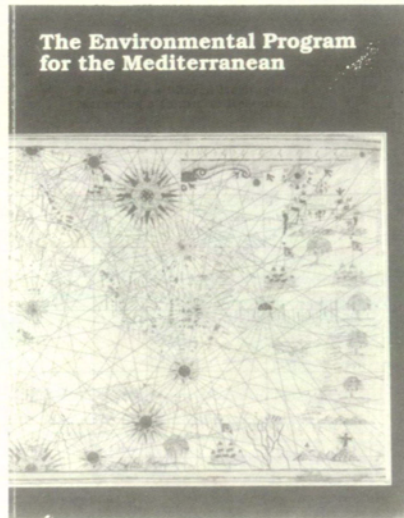
Red Book "Gérard Vuignier" on marine plants, populations and landscapes threatened in the Mediterranean.

This work was published under the auspices of the International Union for the Conservation of Nature (IUCN) which asked GIS Poseidonia to establish, within the framework of the Specially Protected Areas programme, a group of Mediterranean specialists to write it.

The threatened plants, populations and landscapes are listed by country according to current information and classified according to whether they are "in regression", "threatened" or "disappearing". The Red Book will be the basis for the establishment, at regional level, of an action plan for the protection of threatened marine plants by providing guidelines for their protection and management. Its contents remain "open" and they will be periodically revised as new knowledge is acquired and gaps filled.

The publication is dedicated to the memory of Gérard Vuignier who had worked on the first versions of the document but died accidentally in October 1988 while on mission in Mauritania related to the monk seal.

realize the explosive development of environmental problems throughout the world. One almost gets the impression of village solidarity... at planet level. On the first page, the main news item of the month is given 2 or 3 columns. At any rate it is an excellent idea of UNEP's Information and Public Affairs Branch. It is available in English only and one would welcome its publication in the other official languages.



The Environmental Program for the Mediterranean (English only) is a joint publication of the World Bank and the European Investment Bank. It gives an overview of the state of the Mediterranean environment and describes the Environment Programme for the Mediterranean, an initiative of the two Banks, the objective of which is to support regional efforts in environmental matters and especially within the framework of the Mediterranean Action Plan. This report is the conclusion of Phase I of the Environment Programme for the Mediterranean in which the two banking organizations examined the nature, the extent and the causes of environmental degradation in the Mediterranean Basin. Phase II, in progress, will identify and prepare investment projects and define specific actions on the basis of the priorities established in Phase I. The most important element of Phase II is METAP or Mediterranean Environment Technical Assistance Programme.

BOOKS - REVIEWS

EER (Environmental Events Record)

This monthly UNEP publication has 8 pages and contains only short items, "Briefs" or "Flashes" from the world press - dailies, magazines and news agency cables - and scientific publications. Thus, each month the reader has a complete snapshot of what has happened throughout the world in terms of the environment: from the first "garbage museum" opened in New Jersey to the cleaning up of Mount Everest and the star of the Geneva Automobile Show, which is nothing else but the "green car" of the 90's which runs on storage batteries! This series of experts from the world press, often of a penetrating or alarmist bent, gives a rather surrealist picture of our world. It helps readers



THE BLUE PLAN REPORT. COMMERCIAL EDITION IN ENGLISH

This is the commercial publication in English by Oxford University Press of the main Report of the Blue Plan. After the commercial publication in French which made it available to a wide public in the Mediterranean Basin, this new edition in English will reach a wide spectrum of new readers in the English speaking world. The presentation, binding and illustration of the "Futures for the Mediterranean Basin" have been done with great care and make this the indispensable reference work for all "Mediterranean humanists". The manuscript of the Arabic version is currently ready for publication, the Spanish version is in preparation and so is a Summary of the Report in Serbo-Croatian accomplished with the collaboration of the Split Centre. With such a wide dissemination spectrum, the work really deserves the term used for it by a reviewer, i.e. "Bible of the prospective for the Mediterranean". In effect, in recent months references to the Blue Plan are becoming more numerous and indeed accompany nearly all articles dealing with environmental problems in the Mediterranean. (*Futures for the Mediterranean Basin*, edited by Michel Grenon and Michel Batisse, Foreword by M.K. Tolba, Oxford University Press, Walton Street, Oxford OX2 6DP, £30).

THE GLOBAL 500 AWARDS FOR 1990

This year, as in years past, UNEP announced on the eve of the World Environment Day the names of the winners of the GLOBAL 500 Award for 1990. The Global 500 or Roll of honour for Environmental Achievement was launched in 1987 to honour, by the year 1991, 500 persons or associations active in environmental protection. Among this year's 78 winners there are 6 from Mediterranean countries:

• **ROULA ANGELAKIS - MALAKIS** a journalist writing for the Greek women's magazine "Gynaika". Through her articles on ecosystems, world climate, dangerous wastes, desertification, wild flora and fauna, marine pollution and congenital malformations caused by pollution, Mrs. Angelakis has contributed to raising the awareness of the Greek public in environmental matters.

• **ADEL AWAD** is a member of the commissions on marine protection, water quality and urbanism in Syria. His work on water treatment carried out within the framework of the large Syrian project on water and his research in this field were the basis on which sewerage networks were planned for the large cities of the country such as Damascus, Aleppo, Homs and Lattakia.

• **RENÉ DUMONT** is an agronomist, a pioneer of the environmental movement in France. His work on Third World problems has had great success since the 60's and several African governments have solicited his advice. He has filled official positions in France and in FAO related to rural and agricultural development. He has always denounced bad choices concerning economic assistance to developing countries and investments which do not take into consideration environmental impact.

• **NIKI GOULANDRIS** is an artist, naturalist, museum director, ex-Minister of Social Services, ex-president of the Hellenic Federation "Save the children". She and her husband Angelos founded the Goulandris Natural History Museum of Kifissia, a suburb of Athens. She did important work on the preservation of wetlands and contributed greatly to making the young people of Greece aware of environmental problems. Mrs. Goulandris is also a botanist painter of international renown.

• **PHILIPPE LE BRETON** was the founder in 1970-72 of the Rhône-Alpes Federation for the protection of nature and the Ornithological Centre Rhône-Alpes. He has been instrumental in protecting, creating and managing many French national parks. He is the author of over 200 publications on biology and the environment.

• **THE UNA EMERALDS SOCIETY** has 24,000 members and strives to make the young people of Yugoslavia aware of environmental protection. The Society has launched campaigns to have environmental matters included in school curricula and publishes an annual review.

We should also mention a winner of Canadian Indian origin but "Mediterranean by adoption". **MR. RIEL HUARANI** founded the Young People's Planet Movement (YPP) which he has directed since 1989; it tries to raise the awareness of young people throughout the world in terms of environmental protection. He lives in Naples, Italy and has started a "Green Mediterranean Campaign" for the reforestation of the area.

MEDWAVES presents its most sincere congratulations to all the happy winners of the Global 500 Award 1990.

