

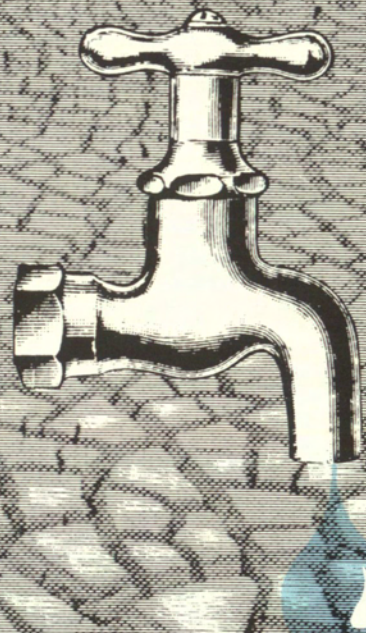


MEDWAVES

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D O S S I E R

THE WATER CRISIS IN THE MEDITERRANEAN



THE CSCE MEETING IN PALMA: TRIBUTE PAID TO MAP

ALBANIA A FULL MEMBER OF MAP

THE WATER CRISIS IN THE MEDITERRANEAN

Will the management of water resources soon mean management of a scarce or even rare commodity? Water shortage threatens to spread and become a permanent feature in the Mediterranean basin because it is increasingly superimposed on demographic, industrial, agricultural and tourism growth that exacerbates demand and jeopardizes the quality of resources.

Water shortage is not a new phenomenon in the Mediterranean. It has marked the area's history in the same way as earthquakes, epidemics and famine and it periodically reoccurs in "dry years", once or twice every decade. What is new, however, is that it is occurring in an increasingly changed environment and this makes it more serious and long-lasting. The most recent drought in the summers of 1989 and 1990 marked a turning point. They highlighted the vulnerability of water supplies even in the industrialized northern Mediterranean countries, which had always relied on an adequate capital of rainfall. The water crisis is endemic or permanent in some southern Mediterranean areas, but it has now even reached towns and villages in France, Spain, Italy and Greece, obliging them to impose temporary restrictions. The shortfall in quantity has been compounded by a decrease in quality due to contamination of surface or underground water. In short, no country is safe from serious shortages in its water supply system and management of water resources is one of the most urgent problems facing public authorities around the Mediterranean basin.

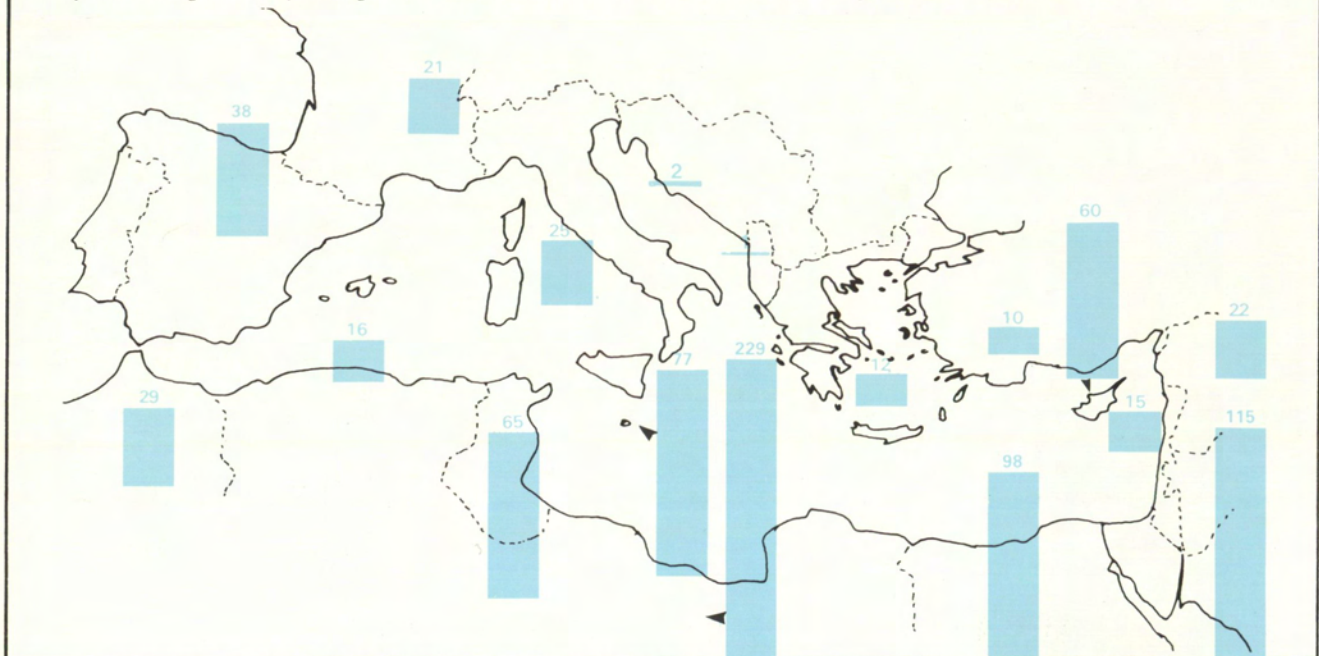
UNEQUAL DISTRIBUTION OF WATER

Water is naturally affected by the North-South division that runs like an arrow through all sectors of the Mediterranean envi-

ronment. On the one hand, the rich countries of the North. In theory, they have everything they need. In practice, their very development jeopardizes water quality and leads to the insidious threat of water shortage. Their coasts are subject to the pressures of urbanization and to the inflow of tourists in the summer coinciding with the maximum demand for irrigation, while localized geographical factors also play a role: the highly accentuated and compartmentalized relief that hampers the flow of water from one basin to another, the extreme irregularity of water courses (sudden floods), salt water seeping into underground water, etc. Southern Mediterranean countries are subject to semi-arid or arid climatic conditions. Some of them - Malta, Israel - are already withdrawing more than their renewable resources. Egypt is almost exclusively dependent on the Nile, an "imported" resource, to use the expression of the specialists, since the Nile - the greatest river in Africa - flows through Burundi, Sudan and Ethiopia (the Blue Nile) before entering Egypt. Another disparity between countries is the relative proportion of surface water and underground water withdrawn. Surface water predominates in Italy, Spain, the Maghreb and Turkey, while underground water occupies first place in Malta, Lebanon, Israel and Yugoslavia; the two are equal in France, Greece, Syria and Cyprus. Finally, there is a difference in water use. In the Mediterranean basin as a whole, 72% of water resources is used

MEDITERRANEAN COUNTRIES AND THE WATER PROBLEM

The map shows the index of water use for each country (annual withdrawals as a percentage of resources). The higher the figure, the greater the problem facing the country, leading to use of non-conventional resources: fossil water, recycling of waste water, seawater desalination).



for agricultural irrigation, 10% for drinking water and 16% for industry (not connected to the common water supply network). But irrigation's share obviously increases in countries with low rainfall, while the proportion of drinking water rises with the standard of living.

This overall picture is further complicated by other pressures on demand. Tourism on the coast during the summer can double or triple withdrawals and lead to crisis situations. The presence of industries that are large consumers of water (power stations in industrialized countries around the Mediterranean, pulp factories such as the one in Mostaganem in Algeria, which withdraws 30 million m³ annually) is another important factor. The development of urban centres around the basin means that the water supply can break down when drought persists. The Athens-Piraeus conurbation in Greece is facing this situation even though Greece is one of the richest countries from the point of view of water resources. Cairo, Algiers and greater Tunis periodically face similar problems.

In order to have an approximate picture of each country's water situation, there is an "operational index", which is the ratio between its total withdrawals of water and its regular renewable resources. This index appears on the map opposite for all Mediterranean countries. The longer the column, the greater the difficulties for the country. A figure above 100% (which is the case for Libya and Israel) corresponds in part to use of non-conventional resources (fossil water, desalination), but it also means that some water is used more than once (recycling of waste water or reuse of water returned to the natural environment).

THE BLUE PLAN SCENARIOS

In its report "Futures of the Mediterranean Basin"* the Blue Plan, in establishing Mediterranean scenarios for the years 2000

* *Sophia Antipolis, France, Oxford University Press.*

and 2025, used "inland water" as the second "environmental component" after soil because of the volume of polluted water discharged into the sea and the risk of conflict due to the increase in demand as a result of intensified agriculture (water for irrigation) and urbanization (drinking water). The results of the scenarios do not show any notable differences among various scenarios for the same country. They do, however, show that coastal countries are facing very different situations and these countries can be classified into three major groups with regard to future water problems:

1. Countries where available water supplies will remain relatively important up to and beyond 2025, allowing an increase in per capita withdrawals as a result of sustained efforts to develop and manage water supplies, in particular, to ensure suitable quality (France, Italy, Greece, Yugoslavia, Turkey, Lebanon, Albania);
2. Countries whose water resources are currently sufficient but will decrease, although these countries will be able to continue to meet their needs through water resource development provided that per capita withdrawals do not increase significantly (Spain, Morocco, Algeria, Cyprus);
3. Finally, countries whose water resources are already limited and which will have to make increased use of non-conventional resources (fossil water, desalination, imports), together with a reduction in per capita withdrawals (Malta, Israel, Tunisia, Egypt, Syria, Libya).

ISLANDS AND ISOLATED COASTAL AREAS

One of the priority actions carried out by the Mediterranean Action Plan's Split Centre since 1985 is that on water entitled "Managing water resources in small islands and isolated coastal zones of the Mediterranean". It has resulted in the publication of a number of documents and expert missions to the zones concerned. Following MAP's refocussing on the planning and management of

FOSSIL WATER

Water resources are termed renewable when they are regularly replenished as part of the overall water cycle (rain, drainage, withdrawal, replenishment, evaporation, groundwater outflow, etc.). For example, waterways, lakes, lagoons, reservoirs, aquifers, etc. Other aquifers, although they are not totally cut off from the water cycle, are only renewed so slowly (over several millennia) that, on mankind's time scale, they can be considered non-renewable resources. These reserves can be exploited in the same way as any mine or oil well, so they are called "fossil water". Extraction of these resources over several decades or centuries means that they will eventually be exhausted. Considerable technical and financial means have to be

employed to ensure the success of such extraction enterprises, which are subject to profitability criteria. This is why such reserves are exploited in countries with a high GNP such as the United States of America and Saudi Arabia. Under its desert region, the southern Mediterranean has large reserves: the Nubian aquifer (Egypt and Libya), the northern Sahara basin (Algeria, Tunisia), the Libyan Sahara basin.

Many of these reserves are already being exploited. Like the mining of any other fossil resource, there are problems of timing: should the water be used to increase production for the benefit of the present generation or should pumping be spaced out over several generations by

limiting it? Libya is implementing a vast project involving a strategy to move the site of operations every 20 or 30 years, channelling the water to the coast over a distance of 500 km in a canal called the "great artificial river". Production forecast for the final stage will be in the region of 1.5 to 2 billion m³. This option available to arid countries is to be used in conjunction with other non-conventional resources: seawater desalination, recycling of waste water, imports. The common characteristic of all these techniques is their high cost. In the Mediterranean, as elsewhere, economic development should include the emergence of costly water and a "water market" subject to the laws of supply and demand.

coastal zones, this priority action has been included in each of the coastal pilot projects. It has enabled conclusions to be drawn from a number of case studies (the islands of Majorca, Porquerolles, Elba, Hydra, etc.) and has contributed to the exchange of information and data in a field that has not been the subject of any large scale co-operation at the regional level, except within the broader framework of the United Nations Development Programme (UNDP), the International Hydrological Programme (IHP), and Man and the Biosphere (MAB) sponsored by UNESCO. In 1986-87, the Split Centre's activities were extended to cover the development of water resources in larger Mediterranean islands. In this context, the Maltese Government, which was facing a particularly serious water supply problem, proposed that Malta should be made a pilot zone for the development of mathematical models for water resource management. A project was drawn up, which the EEC agreed to finance, and signed by the Office of Geological and Mineral Research (BRGM France), responsible for implementation, and the Maltese Secretariat for Water and Energy, the Split Centre continuing to support the project as consultant to the Maltese Government. This is a pilot project for the Mediterranean basin as a whole and it can be used by other islands or countries to maximize the exploitable resources of their aquifers from the point of view of quality and to protect them from pollution.

SOLUTIONS

In May 1990, a seminar was organized in Algiers by the Algerian Ministry of Equipment and the Commission of the European Communities on "Water management strategies in Mediterranean countries with a horizon extending to 2010". Participants recognized "the essential character of active international co-operation among Mediterranean basin countries in all aspects of water management problems". The pressures in this sphere have intensified to such an extent that it has become urgent to define regional approaches so that disparity of resources does not become a source of tension in the Mediterranean basin. Solutions exist, even in the most difficult situations. To describe them would go beyond the inevitably summary nature of an article from which many aspects of the water problem have been left out due to their complexity. Nevertheless, it should be noted that new techniques offer solutions

to save water or avoid waste (drop-by-drop micro-irrigation), use of non-renewable resources (fossil water, see page 3), recycling of waste water, seawater desalination, demineralization of brackish water. However, recourse to these options also implies a change in mentalities and behaviour, what the Algiers meeting termed in one of its recommendations "promotion of a genuine water culture". In this respect, the price of water is vital because it means awareness that water has become a precious asset and can no longer be wasted. Water rates have to be readjusted to reflect the true cost of supplying it, provided that consumers in developing countries are protected through direct subsidies. The impact of such readjustment will not only be felt in the demand for water but also in the level of investment required, which in some countries could amount to up to 20% of public investment.

WATER LAW

Solidarity with regard to the water problem has to be situated on two levels. Firstly, at the national level so that regions with excess water meet the needs of those without, as is already the case in Spain (transfer from the Atlantic basin of the Tagus to the Mediterranean basin of Segura), Italy, Israel, Lebanon, France and Tunisia. Secondly, at the regional and international levels through the formulation and adoption of bilateral or multilateral agreements on the sharing of a common resource or State-State transfers by tanker or underwater pipeline. Such agreements could go beyond the strictly regional framework: rivers that flow through Mediterranean countries often rise far from their borders, particularly in the Balkans, and any over-consumption or pollution upstream has repercussions downstream that could lead to disputes and tension. As far as water is concerned, the law is unclear and varies from country to country, while international law has yet to be established. Water is a common asset, indispensable to all. It is the responsibility of governments to regulate its use, taking into account the urgency, priorities and equity, under the auspices of the major international organizations concerned such as UNEP, UNDP, UNESCO and FAO, which are tackling even more dramatic situations at the global level. Is it necessary to recall that more than two billion people do not have access to clean water in order to demonstrate the relativism of the crisis facing the Mediterranean?



WATER MYTHS IN THE MEDITERRANEAN

Water plays a leading role in all mankind's religions and mythologies, the symbol of creation, purification, initiation, the principle of life and rebirth. In the Mediterranean, the cradle of innumerable civilizations and of the three great monotheistic religions of the Book, these water myths remain very vivid, from Genesis, where "the Lord's Spirit moved over the waters" to Christian baptism and the ablutions that precede prayers in Islam. In the Iliad, Homer speaks of Okeanos, father of the gods, the river that girdles and impregnates the globe. The Middle Ages continued the ancient cult of springs. Philosophy also lauded water, from the time when Thales of Miletus saw in water "the principle of all

things" and Heraclitus of Ephesus "an eternal return". But water is not only beneficent. There is also stagnant, stormy, troubled, foetid water, associated with disease and death.

The threat of water shortage, or at least of the prospect of scarce and therefore precious water, seems to have given new life to some of these myths. Ecology, with its talk of "conservation", "waste water", "sewage treatment", "red tides", "oil spills", "clean water", has revived the original duality of water in the collective unconscious. There is no need to mock or deplore this because myths are first and foremost an effective language. If they are used to defend the environment, they can

be more illustrative and catalytic for public opinion and the media than scientific analyses and dull statistics. Moreover, has water, that "transparent, odourless, colourless, insipid liquid", the prime banal omnipresent element, yielded all its secrets? It would appear not if we consider the contradictory explanations of its structure given by physicists and chemists. And what about the extremely complex relations between the water cycle and climate? Slogans such as "Save our seas", "Respect nature", "Stop toxic waste", which are inevitably summary and simplistic, hark back to the ancestral wisdom inherent in water myths over the centuries.

MAP'S ROLE RECEIVES PRAISE AND SUPPORT AT THE PALMA DE MALLORCA MEETING

The meeting of the Conference on Security and Co-operation in Europe (CSCE) held at Palma de Mallorca, Spain, from 24 September to 19 October 1990, was decided upon four years ago in Vienna in order to complete the famous "third basket" of the CSCE. It focussed on Mediterranean ecosystems and few subjects are so relevant to international co-operation. The composition of the CSCE - the 35 signatories to the Helsinki Final Act (all the western and eastern European countries plus the United States of America and Canada) - was manifestly not adapted to discussion of this subject. Non-European coastal Mediterranean States, which were those most closely concerned, were therefore invited to attend the meeting as observers.

The meeting was opened by the King of Spain. Speeches by heads of delegation had a high political tenor, expressing concern at the future of the enlarged region in its widest sense, extending to the Middle East and the Arab-Persian Gulf. In this connection, the Ministers for Foreign Affairs of Italy and Spain, Mr. De Michelis and Mr. Ordonez, jointly launched the idea of a conference on security and co-operation in the Mediterranean (CSCM), closely based on the CSCE, whose encouraging results since 1975 are self-evident. Italy and Spain are geographically closest to the southern Mediterranean and are therefore anxious to narrow the gap between North and South, which they see as a potential source of dispute and serious conflict in the future. The two delegations gave the participants a working document summarizing their proposal and extending the scope of the proposed conference to the Middle East.

REFERENCES TO MAP

In connection with the environmental theme of the meeting, many speakers underlined the role played by MAP and the need to strengthen and enlarge it. The French Minister, Mr. A. Decaux, reiterated the widely held view that "Our basis for work must remain the Mediterranean Action Plan. Our meetings in Malta in 1979 and Venice in 1984 underlined the importance of the Plan, which is a well-structured system of multinational co-operation. It is

in fact the only one for this region of the world, shared by several continents". The heads of the Italian, Turkish, Greek, Maltese and Tunisian delegations echoed his words, while the Israeli Minister, Mr. Milo, referred to the Barcelona Convention in the following statement: "The notable reduction of pollution in the Mediterranean bears witness to the substantial efforts deployed to cope with this problem. Co-operation among the States, regardless of political differences, lies in the heart of the Action Plan for the Mediterranean".

However, these endorsements came, in a manner of speaking, from "members of the family", in other words, countries already participating in MAP. One of the most encouraging aspects of the Palma meeting was that the reputation of the Mediterranean Action Plan extended way beyond the region itself and reached northern and eastern European countries. The delegate of the Netherlands made a direct appeal to participants: "Let us give full support to the Mediterranean countries within the framework of the Barcelona Convention so that they might accomplish targets of the Action Plan". Similar appeals were made by Germany, Norway and Sweden, which drew a parallel between Baltic and Mediterranean regions and referred to their bilateral co-operation with the latter. Finally, the Portuguese delegate made a statement that evoked the possibility of joining MAP at some future stage: "Geographic and ecological conditions are causing my country to share some of the preoccupations of the Mediterranean world on environmental matters. Scientific elements show that ecological balance between central and southern provinces in Portugal depends solely on the environmental conditions prevailing in the Mediterranean region".

THE BLACK SEA KNOCKS AT THE DOOR

The desire to join MAP was also expressed unanimously and formally confirmed by the Black Sea countries. Mr. Igor Andropov, head of the Soviet delegation, could not have been more explicit: "As we see it, one of the conditions of ecological safe existence of the region should be the strengthening and expansion of the international legal basis for environmental co-op-

eration of States within the framework of the CSCE and among all countries of the Mediterranean basin both on a bilateral and multilateral basis. In this regard I would like to inform you that the Soviet Union is prepared to consider acceding to the Barcelona Convention as well as to the 1976 Protocol on Dumping and the 1976 Protocol on Combating Oil Pollution in Cases of Emergency. We are also prepared to participate in the implementation of the 1975 Mediterranean Action Plan (MAP)". The Romanian Minister for Foreign Affairs and the head of the Bulgarian delegation made similar declarations. The Co-ordinator of MAP, Mr. Aldo Manos, who represented UNEP and MAP at the meeting, could only register such a clearly expressed wish when he spoke after government representatives had made their statements: "... In the same spirit of widening co-operation, we heard the statements of the heads of the delegations of the USSR, Bulgaria and Romania about the possibility of their joining the Mediterranean legal instruments. While this is governed by the Rules of Procedure of the Barcelona Convention and the ultimate decision belongs to a qualified majority of the coastal States themselves, the future of the Mediterranean - a viable future worthy of its glorious past - depends on bold new initiatives for which the work of the Mediterranean Action Plan and that of our sister organizations will have only prepared the way".

In conclusion, the Palma meeting, although formally technical in nature, took place in a context that favoured the political dimension as a result of the upheavals in Europe and the dramatic developments in the Middle East and the Gulf. In an interview with the Spanish newspaper La Vanguardia, the Co-ordinator of MAP welcomed this development and told the journalist who expressed surprise at this unexpected aspect in a meeting on environmental co-operation: "It is precisely political divisions which act as a brake between North and South, as also among southern countries themselves. If we succeed in solving political problems, then co-operation, on which protection of the Mediterranean depends, will grow. Otherwise, problems will linger on through time without any solution being found".

THE MEDITERRANEAN FAMILY AS

Last June's accession by Albania to the Barcelona Convention and its four Protocols is an historic date in MAP's existence because Albania was the last Mediterranean State not participating in the Programme. The 18 signatories (including the EEC) are now 19. For the past five years, Albania had in fact been participating in regular and technical meetings of the Contracting Parties as an observer. Its participation as a Contracting Party is therefore the culmination of a long period during which it has become familiar with MAP's procedures and problems. It is not a "novice" in the family of Mediterranean countries and is fully aware of the role it has to play and the benefits it will derive.

The fact that the Mediterranean family is now complete is not without importance. Firstly, it is the logical conclusion of the co-operation established 15 years ago with the Barcelona Convention and which today unites all the interested parties. Secondly, the Convention and MAP are on the threshold of very important decisions: the prospect of accession by Black Sea countries (except Turkey, which is already a Party because of its Mediterranean coastline), as well as the preparatory process for the 1992 Conference on Environment and Development. Whatever decisions are taken, they will be taken by all coastal States and the Mediterranean's action will gain from legitimate strengthening. Thirdly, at the

sub-regional level of the Adriatic Initiative, the accession of Albania, one of the four countries concerned (together with Italy, Yugoslavia and Greece) can but facilitate the formulation and adoption of measures now that co-operation among the governments has become operational. In this respect as well, the authorities in Tirana are fully aware of the problems because they have been associated in the preparatory consultations and accession has merely concretized de facto participation. Tirana's gesture towards MAP was not improvised. It takes place within the framework of a more general opening up towards the Balkans and Europe and can but be beneficial to the region as a whole.

| P R O F I L E O F A L B A N I A | |
|---------------------------------|---|
| AREA: | 29,000 km ² |
| POPULATION: | 5 million |
| DENSITY: | 107 inhabitants per km ² |
| ANNUAL GROWTH RATE: | (1980 - 1986) 2.1% |
| URBAN POPULATION: | 34.1% of the total population |
| GDP PER CAPITA: | 1,217 United States dollars |
| TRADE: | <i>Imports amount to \$250 million and exports to \$300 million, the main suppliers and clients being industrialized capitalist countries (21% and 49%), Yugoslavia (21% and 15.5%) and Romania (12% and 7%).</i> |
| PHYSICAL GEOGRAPHY: | <i>Hills link the Adriatic coastal plain to the mountainous compartmentalized interior with a consequent range in climate from Mediterranean to continental. Population is concentrated in the mountain valleys of the central region. Since 1946, Albania's development has been based on a socialist economy. Agriculture remains predominant (cereals, cotton, tobacco, sheep and goat farming). Industrialization is accompanied by urban development, the major cities being Tirana (280,000 inhabitants), Durrësi and Shkodra. Despite the establishment of textile and chemical industrial complexes, small-scale activities (particularly in the agri-food sector) are still the most important.</i> |
| HISTORY: | <i>Albania (Shqipëria in Albanian) was first occupied by Illyrian peoples and then colonized by the Greeks and Romans. The Slavs subsequently colonized the plains, but in the mountainous interior the Illyrian tribes vigorously defended their independence and Byzantium was unable to integrate them. Attacked by the Ottomans, the Albanian tribes, led by Skanderbeg, resisted for a quarter of a century. Subsequently, the Albanians lived more peacefully with the Ottoman Empire and the majority converted to Islam. In the XIXth century, the awakening of the Balkan nations drew Albania into the struggle. It became autonomous in 1912 and subsequently independent. A rich landowner became President of the Republic in 1925 and proclaimed himself king under the title of Zog I. Mussolini's designs on Albania led to annexation by Italy in 1939. The country was liberated in 1945 as a result of a very combative popular resistance movement led by the Communist Party. Albania became a People's Socialist Republic under the leadership of Enver Hoxha, who broke with the USSR in 1961 and after 1977 gradually distanced himself from the People's Republic of China. In 1985, on Enver Hoxha's death, Ramiz Alia succeeded him at the head of the State and Communist Party (Albanian Worker's Party). He has pursued a policy of gradual opening towards the exterior, in particular, by establishing diplomatic relations with Bonn in 1987 and by participating in the conference of Balkan countries in 1988.</i> |

A WHOLE WITHIN MAP

PARTICIPATION IN MED POL

By participating in MAP, Albania will immediately start to fulfil the obligations inherent in taking part in MAP's various components. This is the case for MED POL. For a number of months consultations have been taking place between Albanian scientists and authorities on the one hand and MAP experts on the other with the aim of finalizing a national pollution monitoring programme. A MAP mission visited Tirana in October 1990 with a view to reaching agreement with the Albanian authorities on the final details of the programme and its timetable. Visits to the scientific institutions responsible for monitoring took place. With the signing of the Convention in November, training activities can begin, including scientific training courses in Monaco and Athens; an engineer responsible for maintaining laboratory equipment will visit Albania, experts from IMRL (IAEA) will go to Albania to discuss problems of sampling. For MAP, Albania's participation in MED POL means increased geographical coverage for samples and marine analysis in the Adriatic and Ionian Seas, which are particularly important in this maritime area due to the scale of discharges from the northwest and northeast Adriatic coast and the increasing frequency of eutrophication.

AN IMPORTANT ECOLOGICAL CAPITAL

A small country traditionally isolated by rugged mountains, ill-adapted to penetration and trade, Albania has often been compared to a European "protected reserve" from the ethnic, economic and political aspects. This remark is particularly true as far as ecology is concerned. Climatic and pedological conditions account for the wealth of the hydrographic network and the considerable hydraulic potential, irrespective of seasonal variations. Since this issue has an article on water in the Mediterranean, it should be noted that Albania occupies first place in the region for its operational index and second place for total average water yield per km².

The Albanian coastline is fairly long

(472 km) in comparison to the land mass. Except for some short sections, the Adriatic coast is low-lying and this leads to large accumulations of fluvial deposits which rapidly result in soil being washed into the sea. The coastline has several large well-protected gulfs in which the main ports such as Durrësi and Vlorë have been built. The southeast coast, characterized by steep slopes, is on the Ionian Sea, which is very deep. Albania is very rich in lakes and the two it shares with Yugoslavia and Greece are renowned reserves: Lake Ohrid and Lake Prespa. They are home to large numbers of aquatic species, some of which can be considered to be "living fossils".

The varied relief, climate, hydrography and soil also explain the vast wealth of flora with several plants dating from the preglacial era. A number of national parks have been established during the past 40 years. They cover a total area of 18,000 hectares. The most important are those at Divjaka, on the Adriatic coast, and Dajti, on the mountain of the same name (near Tirana, the capital). During the same period, the transformation of large areas through the draining of marshes, land clearance and human penetration has affected the fauna. Studies carried out on the fauna have led to the adoption of conservation measures and planned repopulation of certain zones.

For MAP, this is an important contribution and in the future it will no doubt lead to the creation of protected areas, an inventory of the most rare and threatened species and protection of historic sites. The list of 100 sites adopted by the Contracting Parties in 1985, i.e. at a time when Albania had not yet signed any agreement with MAP, nevertheless included two sites in Albania: Apollonia of Illyria, an intellectual and trading centre in Hellenistic times near the town of Fier, and Dyrrachion (now called Durrësi), whose subsoil was declared a protected archaeological site by the State; the amphitheatre of this important port in Antiquity, founded in 627 BC and called the "tavern of the Adriatic", has been excavated.



DEPARTURE OF STJEPAN KECKES

Mr. Stjepan Keckes, Director of the Programme Activity Centre for Oceans and Coastal Areas (OCA/PAC) at UNEP, Nairobi, took early retirement in September last. The action of this Yugoslav scientist, a doctor of marine sciences from the University of Zagreb, will remain linked to the "heroic era" of UNEP and MAP. Mr. Keckes embarked on an international career very early on, notably at the IAEA Laboratory in Monaco. In 1975, he became scientific head of the Mediterranean Action Plan in Geneva. He was then appointed Director of the Regional Seas Programme (which includes MAP) in 1977, and subsequently Director of OCA/PAC, which is the new name of the structure transferred to Nairobi, where he placed his dynamism and competence at the service of protection of the planet's most threatened marine environments. For those responsible for the environment and for scientists in the Mediterranean region, Mr. Keckes' departure has special significance since it is to him we owe the original concept and structure of MED POL, as well as the governing concepts that, over the years, have been embodied in the various components of the programme, meeting with deserved success. This pioneer can today look back with satisfaction at the progress made over 15 years: the staff at the Athens Unit, all collaborators of MAP and MEDWAVES, simply wish to convey to him our esteem.

NEWS OF THE REGIONAL ACTIVITIES CENTRES

THE BLUE PLAN CENTRE SOPHIA ANTIPOLIS

Summer 1990 was a period of reflection and methodological preparation before tackling scenarios at the local level and contributing more directly to integrated coastal planning; Blue Plan was also present at a number of international colloquiums and symposiums.

STUDIES

■ While awaiting the final agreement between MAP and the Greek Government, the Blue Plan prepared its contribution to the study on the island of Rhodes in liaison with the local team (University of the Aegean), which transmitted its proposals.

■ Contacts with the Turkish national team for the Iskenderun study and French experts enabled the preparation of working documents on the Bay's development/environment system and economically applicable methods of analysis.

■ Two meetings were held with local authorities concerning the study of the French Riviera (overall plan for Cannes-Grasse-Antibes).

■ The first version of a methodological note for the elaboration of a "socio-economic

accounting" base was prepared for the Blue Plan team by one of its consultants. The base endeavours to identify the main flows in a region (for example, the Bays of Iskenderun, Kastela, Izmir, etc.) and their relationship to the rest of the country and the outside world. From the formal aspect, the base uses the UN system for national accounting. The economic analysis at the regional level to which it should lead is aimed at facilitating the elaboration of scenarios in the coastal zones.

DATA BANK

As a follow-up to the previous meeting between the Director of Blue Plan and the Genova Ricerche Centre, a technical meeting was held in Genoa (Italy) on 6 September to strengthen and define co-operation between the two institutions. Blue Plan also formalized co-operation with the Mediterranean Agronomic Institute in Montpellier on agricultural data.

PRESENTATION OF BLUE PLAN AND ACTION IN THE MEDITERRANEAN

■ The Director or Blue Plan collaborators presented Blue Plan, its methods and re-

sults, at the EUROCOAST meetings (Marseille, France, 9-12 July), the colloquium on the Future of the Mediterranean Space (Montpellier, France, 6-8 September), MEDMARAVIS (Alghero, Sardinia, Italy, 27-28 September), and in Toulon, France, on 9 September.

■ The World Bank had a meeting with the Blue Plan team on 16-17 July on the subject of coastal ecosystems from the prospective approach, including legal, institutional and social provisions.

PUBLICATION

The final versions of the different brochures on forests (Mr. Marchand), fisheries (Mr. Charbonnier), protection of ecosystems (Mr. Ramade) have been prepared for publication.

INTERNAL MEETINGS

Finally, an important internal meeting of the programme, chaired by Mr. Batisse, was held at Blue Plan from 28-30 August to finalize a "table" of current activities and to prepare a programme for future action within the framework of MAP's priorities regarding coastal zones and integrated management.

MAP'S WORK PRESENTED DURING A MISSION TO THE FAR EAST

During a mission to the Far East, the Co-ordinator of MAP, Mr. Aldo Manos, had an opportunity of presenting the achievements and perspectives of the Mediterranean Action Plan at two important scientific events held in Japan and China.

The International Conference on the Environmental Management of Enclosed Coastal Seas was held at Kobe, from 3 to 6 August 1990. At the opening ceremony, attended by more than 1,200 delegates, Mr. Manos read out a message from Dr. Tolba, Executive Director of UNEP. At the fourth of five

working sessions, Mr. Manos presented information on specifically Mediterranean problems and the co-operation established in the region. In parallel with the Conference, he spoke on the same subjects during a television programme broadcast by the Japanese channel NHK. In the Declaration adopted at the conclusion of the Conference, participants took note of Japan's offer to implement a training programme in 1990 for transfer of technology on environmental management of enclosed coastal seas to developing countries. The offer reaffirmed Japan's concern for the envi-

ronment of other distant regions of the world, already underlined concretely in the Mediterranean by specific action (in Turkey, for example).

Four days later, Mr. Manos took part in an International Symposium on Marine Geography in Beijing, China (10-11 August), organized under the auspices of the International Geographical Union/Commission on Marine Geography. MAP's Co-ordinator informed participants of the approach adopted by UNEP within the framework of the Regional Seas Programme.

"Saving the Mediterranean. The Politics of International Environmental Co-operation" is the first, in-depth study of the Mediterranean Action Plan from the perspective of historical development and political theory. It contains a systematic investigation of the role played by experts and technical co-operation in the efforts deployed over 15 years to control pollution in the region. The author, Peter Haas, is Senior Lecturer in Political Science at the University of Massachusetts in Amherst. He puts forward a new interpretation of international co-operation, what he calls "the emerging international order", basing it on a study of the legal instruments, mechanisms and development of MAP. According to the author, MAP's success is due to a group of specialists in ecology - "an epistemological community" - who strongly influenced both the interests of States and the form of the provisions adopted jointly. In the environmental field, the emerging international order could be determinant for our collective survival. This analysis, which will greatly interest all those concerned by the environment and its relation to State policy, international relations, institutional theories and pressure groups, is based on the author's interviews with nearly a hundred experts, research workers, national managers and international civil servants, as well as on a painstaking analysis of sources and archives. The book also lists important events in MAP's life, gives a list of abbreviations and acronyms, a map of sources of pollution in the Mediterranean, a bibliography and an index. For all those striving for MAP's success, it is a careful objective summing-up by an external academic, the view of an "outside observer". The importance he attaches to MAP and the perspectives he outlines justify the effort made. (Columbia University Press, 562 West 113th Street, New York, USA, 275 pages).

"Children and the Environment" is a brochure published jointly by UNEP and UNICEF. The preface is signed jointly by Dr. M.K. Tolba and Mr. J.P. Grant, respectively Executive Director and Director General of the above-mentioned organizations. The aim of this well-conceived brochure is to show to what extent the changes taking place in the environment affect children and what action should be taken in this respect. We follow the child from before birth, when the foetus is already affected by a number of external factors (the mother's state of health and nutrition), up to the time when,

at the age of reason, his future will depend on the socio-economic circumstances of his family, community and country. The work which so many children in the Third World are obliged to do, the idleness and poverty that await children in large urban areas and the absence or lacunae of elementary education are the most alarming aspects of this document. The last chapter deals with the problem of making children aware of the environment and one can only agree with the statement that "Sensitivity to the Environment is not achieved solely through book-learning, it requires real-life experiences also. There is an essential difference between 'learning' and 'awareness' - a student may learn and understand that a particular plant is rare and may know a great deal about its taxonomy, etc. But he may still pull it out by the roots". The text has a number of illustrations and diagrams as well as inserts that make it easy to read (citing, for example, children's views on a particular subject). The publication is a follow-up to World Environment Day, held on 5 June last year, and devoted to the "Child and the Environment" (see MED-WAVES, no. 19. 1990/1). In their preface, Dr. Tolba and Mr. Grant note: "The needs of children challenge our power of foresight and planning for this future". This brochure can help a wide public to become aware of this. (UNEP, P.O. Box 30552, Nairobi, Kenya; UNICEF, 3 United Nations Plaza, New York, NY 10017, USA, and Palais des Nations, CH-1211 Geneva 10, Switzerland).

"Our Common Seas: Coasts in Crisis". In contrast to the book by P. Haas, this book confines itself to the purely environmental aspects and gives a summary of all the world's regional seas, including the Mediterranean, which have been the subject of action plans under the auspices of UNEP. The author, Don Hinrichsen, is a well-known journalist specializing in environmental issues (he was chief editor of the international magazine "Ambio", published in Stockholm). He wrote his book after carrying out field visits to people responsible for combating pollution locally and its basis is the vast quantity of relevant scientific documentation, beginning with the 1990 GESAMP report entitled "State of the marine environment". The reader will find in handy paperback format a form of inventory of the world's coasts, backed by indisputable facts and figures. The author rightly lays emphasis on the problems of developing countries. He also gives the opportunity of

comparing the experience and results of the various action plans for regional seas and underlines the urgent need for better concerted and more determined action. This commercial publication has the support of UNEP's Programme Activity Centre for Oceans and Coastal Areas (OCA/PAC). (Earthscan Publications Ltd., 3 Endsleigh Street, London WC1H ODD, 184 pages).

"La Méditerranée en droit international de l'environnement" ("The Mediterranean in International Environmental Law"), following on the other publications mentioned above, confirms that the region is inspiring a growing number of global studies on its environment from a number of different aspects. The title here is sufficiently clear, but the reader who expects an austere legal inventory will be pleasantly surprised. The author, Maguelonne Dejeant-Post, has revised a lengthy doctoral thesis for a wider public; she is always concise and easy to read and has cleared a path through the absolute jungle of legal and political texts which, year after year, deal with the Mediterranean environment. The book lists more than 70 bodies dealing with the Mediterranean environment, which shows that many efforts are wasted due to lack of elementary co-ordination. In this context of such a wide variety of measures, the Mediterranean Action Plan stands out through its cohesiveness, scope and achievements, and over half the book is directly or indirectly devoted to it. One notes the interest shown in coastal areas and the legal implications this involves; this pertinent analysis gives a better understanding of MAP's refocussing and the importance of the action currently taking place in pilot coastal zones. This legal study opens up perspectives that cover a number of the major problems that will have to be dealt with by MAP in the future: accession and the role to be played by non-Mediterranean countries, control procedures and sanction mechanisms, the "polluter pays" principle, future of the Trust Fund, North-South co-operation. At a time when the Mediterranean's contribution to the 1992 Conference on Environment and Development is being elaborated, books like this provide a better analysis of the action carried out over 15 years and allow the major areas to which future efforts should be directed to be defined. (Economia Publications, 49 rue Hericart, 75015 Paris, 371 pages. Preface by Alexandre-Charles Kiss, President of the European Council of Environmental Law).

MAP ACTIVITIES

FAO/UNEP/IAEA meeting on the accumulation and transformation of chemical contaminants by biotic and abiotic processes in the marine environment.

La Spezia, Italy, 24-28 September 1990

This meeting was held within the framework of Phase II of MED POL. Thirty scientists from the following countries took part: France, Greece, Israel, Italy, Spain, Syria, Tunisia, Turkey, United Kingdom, United States of America and Yugoslavia, together with representatives of FAO and IAEA. It provided the opportunity for a certain number of scientists to present their MED POL research work on "Fates/environmental transformation".

In addition to information and discussion on biological and abiotic transformation of contaminants, participants also discussed environmental management strategy and antipollution measures. In this connection, they defined a number of approaches: (1) the most likely matrices and pathways should be identified for various contaminants so that the concept of "proper measures properly applied" can be implemented;

(2) quality assurance is a necessity. Participation in inter-calibration exercises ensures that data are realistic and comparable. It was recognized that sampling could contaminate transformation;

(3) on the basis of the development of scientific knowledge on the fate and significance of contaminants in the environment, the meeting recommended periodic review of existing legislation and updating of environmental quality criteria in line with scientific development.

Finally, the meeting drew particular attention to research needs in this area. The report was published by the Athens Unit.

Consultation WHO/UNEP on guidelines for monitoring of land-based marine pollution sources **Istanbul, Turkey, 27-29 September 1990**

There is a continual increase in the number of municipal and industrial effluent treatment plants as part of national programmes for monitoring of marine pollution carried out within the framework of MED POL. It was therefore considered necessary

to formulate basic standard guidelines for participating institutions, for many of whom this activity is a new undertaking.

The preliminary draft of the guidelines was drawn up by the anti-pollution research group at Bogazici University. The consultative meeting held at Istanbul from 27 to 29 September 1990 brought together seven invited experts from five Mediterranean countries and a representative of WHO's Regional Bureau for Europe. Its mandate was to review the draft guidelines and make recommendations regarding the detailed content of the final text. The meeting approved the necessary amendments and the guidelines will be finalized for distribution to Mediterranean institutions at the beginning of 1991.

Meeting of Managers of Mediterranean Specially Protected Areas **Monaco, 5-6 October 1990**

Meeting at the invitation of IUCN, within the framework of MAP's regional programme for specially protected areas, managers of specially protected areas and representatives designated by national focal points for SPAs from 12 Mediterranean countries considered the establishment of a network of specially protected areas in the Mediterranean. Also present at the meeting were representatives of the organizing units (MAP Co-ordinating Unit, French Ministry of the Environment, Port-Cros National Park, World Bank), WWF and six other organizations, as well as the Italian Parks and Reserves Federation. The meeting was hosted by the Monaco Scientific Centre. Initially, each head or manager introduced the protected area under his responsibility, explaining the problems encountered, the principal needs and possible solutions to their management. Representatives of NGOs and the Italian Federation were then invited to make remarks and suggestions. The ensuing general discussion highlighted the main points raised by the establishment of a network. At the conclusion of its work, the meeting accepted a proposal by the Port-Cros National Park to host the network's secretariat and it unanimously adopted a declaration that stated inter alia that the heads or managers:

- aware that each of them faces difficulties in administering the protected area under his responsibility and that communication among them, around the Mediterranean, is inadequate, decided, through exchange of experience, to commit themselves still further to the conservation of nature;

- decided to establish a network open to all Mediterranean protected areas in order jointly to develop monitoring, training, exchange of information and other forms of co-operation.

Seminar on financial questions, liability and compensation for consequences of accidents causing pollution by oil and other harmful substances **Malta, 8-12 October 1990**

The seminar was organized by the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), which welcomed to its Malta headquarters participants designated by 12 Mediterranean coastal States, together with representatives of the International Maritime Organization (IMO) and the United Nations Environment Programme (UNEP).

The seminar approved conclusions and recommendations concerning the legal, administrative and financial aspects of mutual assistance. It examined, discussed and amended draft principles and guidelines concerning co-operation and mutual assistance so as to facilitate and accelerate co-operation among Mediterranean coastal States in emergency situations.

In order to finalize the principles and guidelines, participants in the seminar proposed the establishment of a small group composed of representatives of four Parties to the Protocol concerning Co-operation in Cases of Emergency (two representing the southern Mediterranean and two representing the northern Mediterranean). The group would meet at REMPEC headquarters from 18 to 19 March 1991. Cyprus, Egypt, France and Yugoslavia were designated as the four Parties which would nominate representatives to attend this meeting.

The seminar approved, in particular, the following recommendations:

- Mediterranean States which are not yet Parties to the International Convention on Civil Liability for Oil Pollution Damage and the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage should take the necessary steps to accede to them.
- The principle to be applied in the case of State to State assistance, unless bilateral agreement exists including financial arrangements covering the question, should be that of reimbursement of the costs of assistance provided by a State

to another. If measures are taken by a Party on its own initiative, that Party should bear the cost of such measures.

- Nevertheless, where all or part of the costs cannot be recovered under existing international legal regimes, the Party requesting assistance may ask the Party providing assistance to waive the reimbursement of non-recoverable expenses. It may also request postponement of reimbursement. In considering such requests, Parties to the Protocol solicited should take into consideration the specific needs of certain States of the Mediterranean region.

Before they are submitted to the next meeting of the Contracting Parties for adoption, the proposed recommendations, principles and guidelines will be submitted to the meeting of the Scientific and Technical Committee to be held in May 1991.

**Xth ICSEM/UNEP/IOC/ workshop on marine pollution in the Mediterranean
Perpignan, France,
15-20 October 1990**

In the course of this workshop, which has been held biennially since 1972 in conjunction with the plenary Congress-Assemblies of the International Commission for Scientific Exploration of the Mediterranean (ICSEM), the three major international organizations concerned traditionally examine a series of issues relating inter alia to specific pollutants such as halogenated hydrocarbons, petroleum hydrocarbons, heavy metals, microorganisms, etc.

For this Xth workshop, in which approximately 60 participants took part, a different approach was used for the work, which was grouped around two principal themes, each introduced by a lecturer (Mr. Y. Halim, of the University of Alexandria, Egypt and Mr. M. Joanny, of IFREMER, France, Co-ordinator of the French National Monitoring Programme):

- pollution problems in the Mediterranean and corresponding research priorities;
- strategies for monitoring marine pollution.

Discussion centred on the results obtained in data collection on pollution sources, heavy metals, microorganisms, petroleum hydrocarbons and organochlorine in coastal zones.

Participants undertook a global assessment of the MED POL programme and agreed on the need to change or improve

certain aspects. They decided to keep the new formula for future workshops.

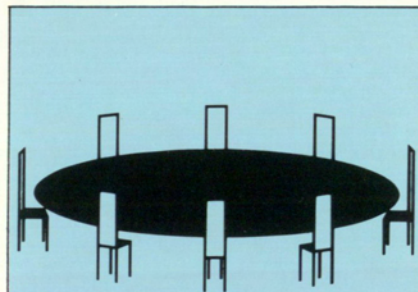
**Workshop on planning and implementation of conservation projects on historic sites
Barcelona, Spain,
22-25 October 1990**

The objective of this workshop, which was the fourth to be organized on the theme, was to define and improve methodology for the planning, conception and implementation of conservation projects in historic Mediterranean sites. The meeting was linked to the priority action on historic sites carried out by the Split Centre. Thirteen Mediterranean coastal States participated, together with representatives of UNEP/MAP, UNESCO, ICOMOS (International Council on Monuments and Sites), ICROM and IUA. A press conference was organized by the host Government on the first day and representatives of UNEP/MAP and RAC/PAP replied to questions by some 30 journalists.

**ECHOES OF
MEDITERRANEAN
COUNTRIES**

**IXth international symposium on medical oceanography
Nice, France,
22-24 October 1990**

The symposium was organized by the French institute CERBOM (Biology and Medical Oceanography Study and Research Centre) on the occasion of the 30th anniversary of its foundation, with the support of UNESCO and several French scientific and regional bodies. The symposium's work mainly concentrated on the development of eutrophication, its relation to certain pollutants, as well as its ecological, economic and health impact. New light was thrown on the subject by participants from different backgrounds. The Mediterranean was well represented and much information was provided by research workers from both the south and north Mediterranean (Universities of Alexandria, Egypt; Oceanographic and Fisheries Institute, Split, University of Ljubljana, Yugoslavia; Universities of Pisa, Messina and Trieste, Italy; TAEK Institute, Istanbul, Turkey, etc). The opening speech was given by Mr. Brice Lalonde, French Secretary of State for the Environment.



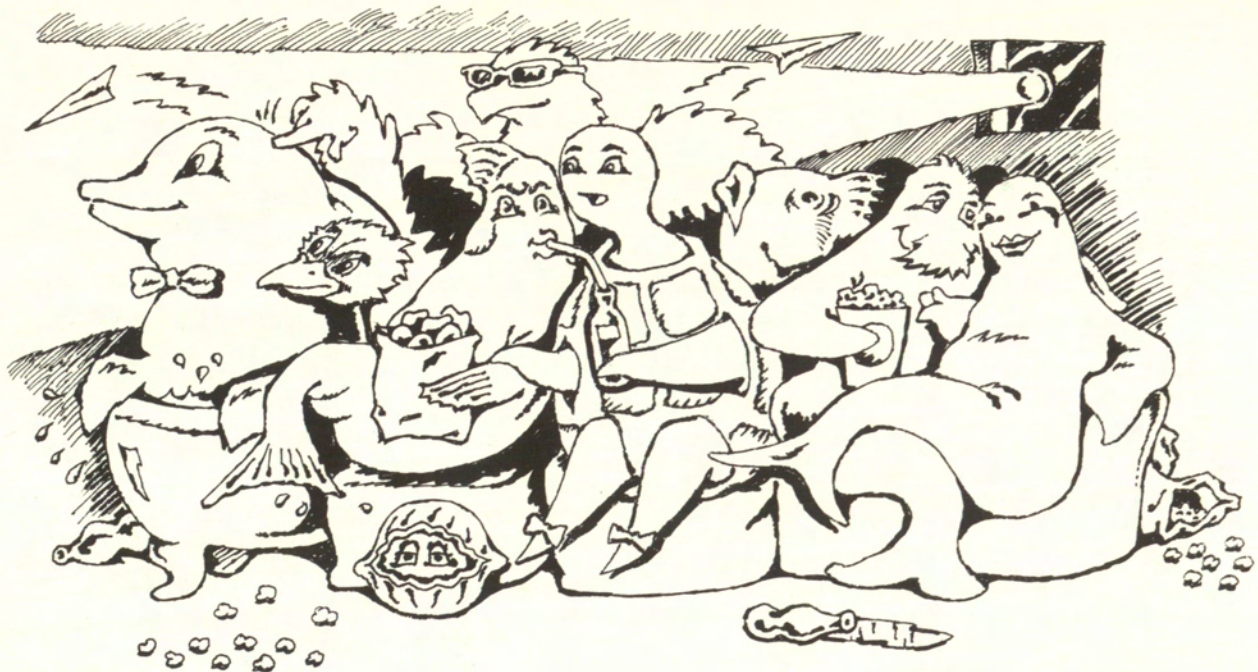
**THE MAP CALENDAR OF
MEETINGS**

| | |
|--|-------------------------------------|
| Training workshop on the analysis of physical oceanographic data and time-series | 11-15 December Athens Greece |
| Expert group on the offshore protocol | 8-11 January Athens Greece |
| Meeting of directors of Regional Activity Centres | 14-15 January Athens Greece |
| Review meeting for adoption of the final version of the Mediterranean report to the 1992 Conference on Environment and Development | 16-18 January Athens Greece |
| XXIVth meeting of the Inter-Agency Advisory Committee | 21-25 January Athens Greece |
| Meeting of the Bureau of the Contracting Parties | 6-7 February Brussels Belgium |

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THE FIRST FILM FESTIVAL ON THE MEDITERRANEAN ENVIRONMENT

The Festival, in Alghero, Sardinia, awarded the Grand Prix to an Austrian television documentary and a film by Greenpeace Italy

The idea of such a festival arose out of local contacts and friendships among those responsible for two associations: a film club (Circolo del Cinema CIAC '88) founded in Alghero, Sardinia in 1988, and MEDMARAVIS the Mediterranean Association for Marine Birdlife, situated in Alghero, Paris and Malta. The idea was immediately taken up by the dynamic town council of Alghero, a lovely little port situated amongst olive and eucalyptus trees and umbrella pines, a popular island summer resort. Cinema lovers and ecologists rapidly decided upon an international gathering that would bring together filmed experiences related to the Mediterranean's problems. The next thing was to obtain sponsorship: UNESCO, the Council of Europe, the Italian Environment Ministry, and the Sardinian Autonomous Region quickly responded to requests. As far as the festival's title was concerned, "Ulysses 90" was an obvious choice for this contemporary voyage through the waters and countryside marked by the exploits of Homer's hero, who was unaware of the damage they would suffer one day.

"Ulysses 90" lasted three days, from 27 to 30 September 1990. Thirty-four films competed and four were hors concours. Although the majority were the work of Italian directors (21), non-Mediterranean participation (1 Danish, 2 British, 2 Austrian and 1

Swiss) underlined the interest shown by north and central European countries in a region where its citizens flock en masse every summer.

The idea of uniting the cinema and the environment sets a good precedent which it is hoped will be renewed because awareness of the principal environmental problems is today to a large extent achieved through the medium of television. A review of creative efforts in this sphere leads to better understanding of ways of reaching the general public and the pitfalls to be avoided. The fashion for ecology prevalent in the media does not only have positive aspects; it sometimes leads to ill-founded fears that fall short of their goal as a result of repetition, as well as to an excessively superficial approach to questions that are, by nature, very complex, thereby running the risk of falsifying the true image of the environment.

The one regret is that the festival did not see the participation of any southern Mediterranean countries, even though many of the films shown had the south as their subject. Two films shared the Grand Prix. In awarding the prize to the Austrian documentary "An intricate world", the jury declared that the film "addressed the complexity of Mediterranean problems and displayed, with scientific supporting data, the da-

mage caused by a distorted development model". The film is the fifth and last part of a television serial entitled "The Poseidon Gardens". The other prize winner ex aequo was "Mediterranean", directed and produced by Greenpeace Italy in 1987. It evokes several resounding campaigns waged by Greenpeace to alert public opinion to the dangers threatening the Mediterranean sea and coastline. One of the sequences concerns the ship "Mediterranean Shearwater", which six times a year transports irradiated material from Italy for retreatment in England.

The prize for terrestrial ecology went to "Ichkeul: between the Desert and the Deep Blue Sea", a film by Hugh Miles, produced by the BBC, highlighting the ecological importance of this Tunisian lake for birdlife. The environmental impact prize was awarded to "Straits Fish", a Spanish film by Ramon Folk on destructive tuna fishing practices in some Mediterranean countries. Produced by Catalan television in Catalan, the film gave the town of Alghero the opportunity to recall its own history: in the XIVth century this Sardinian port had been occupied by Catalans and it has kept their customs, language and impressive monuments such as its cathedral.