

MEDWAVES

MAP CO-ORDINATING UNIT • NEWS BULLETIN PUBLISHED IN ENGLISH AND FRENCH • ISSUE No 9 / II 1987

FIGHTING THE NEFOS

The *nefos* (air pollution) that covers the Greek capital, Athens, is a result, to a large extent, of improper operation and maintenance of several sources (industrial boilers and processes, space heating furnaces and vehicles), stresses Mr Costas Bourkas, Special Secretary of the Environment of the Greek Ministry of the Environment. "This means that there are ways to attack the problem and substantially reduce its impact on human health and the environment using techniques already available" The know how required is supplied for the most part by Greek companies and agencies.

In the Greater Athens Area 35% of the population and about 50% of the vehicles and industry of the country are concentrated, a result of what environmentalists, ecologists and many politicians call "twisted (or erroneous) development".

Pollutants include smoke, dust, hydrocarbons, nitrogen oxides, sulphur dioxide and carbon monoxide.

The city's violent expansion without a master plan deprived it of parks and wide avenues and endowed it, instead, with narrow streets and heavy traffic. The need for an action programme became, over the years, imperative.

Former Minister of the Environment, Mr Antonis Tritsis, resuming office after the change of government in 1981, declared "Nefos is a political problem".

Today after four years of monitoring and analysis, building up infrastructure and staffing, the 5-year programme (1986-1990) for the abatement of air pollution in Athens has already been launched.

Bourkas, an environmental engineer, is optimistic. "We believe that in a few years' time the *nefos* will have been dealt with" he says.

The basic philosophy of the action programme is that it is possible to reduce the weighed average rate of emissions within the area by up to a 30% with a net overall profit to the national economy.

Three are the major targets: industry, automobiles and central heating.

"The quality of the fuels has been improved (with an expense of 1.5 bn drachmas per year) with impressive results" says Bourkas. "The highest concentrations of SO₂ and lead monitored in Athens are half as high as the standards set by the EEC. Our standards are the strictest in Europe".

Smoke, Athens' biggest air pollution problem, has been dramatically reduced: in



Air pollution in Athens has created several problems; one of them is the slow erosion of the white marble, the material used by the ancient Greeks in the construction of their temples as well as the creation of works of art; one of the famous Caryatides, shown here in its present condition, is a typical example. SO₂, the main cause of this erosion, has been radically reduced over the last decade.

1984 smoke exceeded acceptable limits for 54 days, in 1985 for 43 days, in 1986 for 12 days, and in the first 8 months of 1987 5 days. "We hope that in the next couple of years smoke will have ceased to be a problem, while dust emissions will be, hopefully, reduced by 85% by 1988", Bourkas anticipates.

The antipollution measures, according to Alexander Economopoulos, Phd, former head of the Pollution Control and Monitoring Sectors of the Environmental Division of the Ministry, responsible for the abatement strategy formulation, will cost about 5 bn drachmas, but they are expected to generate an annual profit of 800 m drs, mostly through energy saving. The total reduction of pollutants emitted by industry is estimated to reach 55% by 1988.

Emissions from traffic play a dominant role in the air pollution problem, contributing 70% to the total emissions on a weighed average basis. Vehicles are the big responsible for the most part of the pollution by smoke, NO_x, CO and VOC in the central Athens area. The authorities have established a network of Vehicles' Technical Control Centres.

"[The main objectives are] the maintenance and inspection

of vehicles and the replacement of the existing diesel - powered taxis with LPG -, or gasoline - powered ones equipped with catalytic converters" summarizes Economopoulos.

"This is, in fact, the target for the year 1990. On the other hand the introduction of cars using low emission technologies is scheduled to start in 1989 in the EEC. The Greek Government has decided to provide incentives to owners in order to motivate them to replace their old-technology cars, thus accelerating the process".

In Central Heating the action programme selected as its target the inspection of the largest 45,000 building (hotels, hospitals etc) that cover approximately 66% of the fuel consumed every year (about 350,000 tons of diesel). This will reduce the total smoke emissions by 50% and will, in the same time, generate a net profit of about 266 m drs.

It should be mentioned that all these projects require high costs in drachmas, whereas they will contribute (through energy saving) to the reduction of considerable expenses in hard currency.

This 5-year action programme is a major step, yet another battle in the war the Greeks have to fight in order to reduce air pollution. Notes Bourkas: "Other major decisions must be taken and actions undertaken, changing the life of this city, if the problem of air pollution is to be met effectively: restructuring of the public transport system, traffic interventions, decentralization of commercial activities, differentiation of working hours in business and public services, transfer and re-installation of industries in specially designed industrial zones and, last but not least, re-organizing of the relationship between State and citizens".



GREECE: A PORTRAIT

"MEDWAVES" reviews the greeks' strategies and programmes for the protection and conservation of nature and endangered species.

MONITORING THE SEA WATER QUALITY

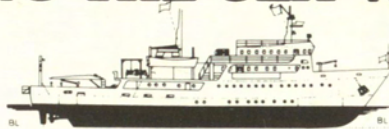
A country with 2,000 islands and more than 15,000 km of coasts, Greece is constantly trying to get to know even better the sea, a traditional source of income but also a source of inspiration-artistic and literary.

The first opportunity, as well as challenge, for a thorough programme of systematic monitoring of the quality of the marine environment in Greece, even in selected areas, was provided by the Mediterranean Action Plan, and especially by MED POL. The programmes carried out previously covered the parameters only partially.

During the first phase of MED POL, Greece participated in 21 projects (MED POL I-VII) and an oceanographic cruise in the Aegean (1980).

During MED POL Phase II, 20 research institutes and laboratories from Athens, Salonica and Patras participate in the Greek monitoring programme; the National Centre of Marine Research is playing a major part in this programme. There is a provision for 38 stations forming a network covering the Aegean and the Ionian Seas, in the greek national monitoring programme. Another 50 stations cover 5 coastal areas, namely the Saronicos, Thermaicos, Patraicos, Kavala and Strymon Gulfs, where a control of the land based sources is to take place as well.

"Even though an agreement has not been signed yet between the Greek authorities and MAP, the programme is carried out in its most part since 1984 with a frequency of 2 samplings per year for the open seas, 4 samplings per year for the coastal zones and about one sampling every 15 days for



The Oceanographic Vessel "Aegean". Technical characteristics: Length 51.1 m, Width 9.6 m, Crew 22 persons, Scientific personnel 18 persons, Speed 13 knots.

the monitoring of micro-organisms during the summer season", says Dr Athena Mourmouris, an Environmental Engineer, who is the greek national MED POL Coordinator.

"The main criteria for the selection of the sampling stations were the oceanographic characteristics, the tankers' routes and the possible effects from land-based sources, as far as the open seas were concerned. With regard to the coastal areas the criteria were urban and industrial concentration, existence of bathing waters and aquaculture as well as closed gulfs.

The national monitoring programme included the jelly fish to the parameters laid by MED POL, elaborating 6 research programmes during the biennium 1984-86, even though the jellyfish have not created any problem in the last several years.

Greece's two oceanographic vessels (the "Aegean", owned by the National Centre of Marine Research and the "Thetis", owned by the University of Salonica) are used for sampling cruises, while the third ("Philia - Friendship", owned by the University of Crete) will join the programme in the short future since it is presently involved in other marine biology projects.

It is too early to proceed in making de-

tailed estimates about the quality of the marine environment in Greece, even though it appears that the problems are local and limited in number and extent. On the other hand such a programme is bound to function based on feedback to-and-from other international programmes and national activities (such as data banks, physical planning, environmental engineering, definition of the legal framework etc.).

The 12-year-long existence of MAP proves the importance the Mediterranean coastal states render to the protection of their common marine environment. The greek monitoring programme, with an annual budget of more than 30 million dracmae, can be considered as a small contribution to that direction".

SOME OF THE PROGRAMMES CARRIED OUT BY THE GREEK AUTHORITIES

- National physical oceanographic programmes in the Aegean and the Ionian Seas since 1962;
- Programme on the microbial pollution of the Saronicos Gulf since 1975;
- Programmes for the monitoring of pollution by microbes, heavy metals and hydrocarbons of the Gulfs of Saronicos, Thermaicos, Patraicos, Kavala and Strymon, since 1976;
- Programme for the monitoring of pollution in the Malliacos Gulf, 1983;
- Programme for the monitoring of pollution, mostly by heavy metals, of the Gulf of Yera, island of Lesbos, since 1986.

COASTLINE: MOSTLY CLEAN

Greece with its very extensive coastline is ranking first among the Mediterranean countries with a third of the total coast length of the Mediterranean Sea (15,000 out of 45,000 km approximately).

Coastal waters are used for swimming, recreation, fishing, travel and commerce and disposal of liquid wastes.

The length of the coasts used for bathing amounts to 2,747 km of which 1,745 km in the mainland and 1,002 km in the islands.

The rest of the coastline (with the exception of harbours and marinas) because of the geology and typology of the coast, does not practically permit the landwards public access for swimming.

According to the census and cartography of the coasts suitable for swimming carried out by the Ministry of the Environment, 2,409 km (or 87.7% of the total) are considered of perfect, very good or good quality (53.5% in the mainland and 34.2% in

the islands); 140 km (5.1%) are considered as of medium quality (3.6% in the mainland and 1.5% in the islands); 118 km (4.3%) is considered as being of questionable quality (96 km in the mainland and 22 km in the islands); finally 2.9% of the coasts that might be used for bathing (0.5% of the total coast length, that is 80 km) is officially classified as unsuitable: in these beaches swimming is prohibited. Most of these coasts are to be found in the mainland.

Swimming is by principle prohibited in the harbours and marinas according to greek legislation; The so resulting total coastline in which swimming is prohibited is 200 km only.

The coastal areas near big cities like Athens and Salonica were a focus of special attention. A monitoring programme on the quality of coastal waters of Saronikos and Southern Evoikos, was inaugurated in 1975. It includes densely populated areas, summer

resorts, harbours, marinas, areas with heavy marine traffic and areas where wastes are dumped by sewage systems or other land based sources. Heavily polluted sites as well as remoted areas were included in order to provide background and comparative information.

The Data collected show that almost all bathing waters, with the exception of some beaches, are suitable for swimming. Sites intermitently polluted are concentrated around the industrial zone of Elefsis, harbours and marinas, the outlet of the sewage system at Keratsini and some other locations.

The Greek Authorities are implementing a programme of a total cost of 50 billion drachmas (of which more than half was spent during the last 5 years) on the design and construction of sewage systems and treatment plants in 53 cities.

PROTECTION OF THE CARETTA IN ZANTE

TWO of the three species of the sea turtles that live or appear in the Med lay their eggs on the beaches around the Basin: *Caretta caretta* and *Chelonia mydas*. In Zante there are only *Carettas*. A mature female's shell is 70-90 cm long; the carapace and the flippers are brown - red with shades of green while the plastron is yellow with light red shade at certain spots. Neither the head nor the flipper can be drawn in the shell.

It is rather unlikely that the turtles can catch fish, even though they are quite able swimmers, so they cannot be considered as enemies of the fishermen.

In Zante egg laying starts in June and ends in August. In that period the scientists counted 50-60 exits of *Carettas* per day. In 10 minutes a *Caretta* seems to lay about 100 eggs. Not all exits result to egg laying. Mating probably occurs in the water, near the egg laying beaches.

Hatching starts in early August.

The hatchlings remain in the nest for a period of 3-5 days.

Then they abandon the nest, usually during the night. Their shells are soft, 4,5 cm long and their colour is grey-black.

The *Caretta caretta* is considered an endangered species within the EEC limits. It is included in Appendix II (strictly protected species) of the Convention on the Conservation of European Wildlife and Natural Habitats and in Appendix I of CITES.

Mr Dimitris Margaritoulis is the co-ordinator of the sea turtle research project of the Greek Ministry of the Environment. Says he: "In Greece, action to conserve sea turtles started in 1979 with the discovery of Zante nesting areas.

Although turtles were never exploited in Greece a Presidential Decree issued in 1980 prohibits fishing of sea turtles, destruction of eggs and collection of hatchlings. In 1981, another Presidential Decree, providing nominal protection to the endangered species in Greece, included in its lists all species of sea turtles encountered in Greece (*Caretta caretta*, *Chelonia mydas* and *Dermochelys coriacea*).

Meanwhile actions to protect the nesting areas in Zante started in 1980 with a Directive, by the National Council of Physical Planning and the Environment, which declared the main nesting sites as protected and appointed the competent Ministries to implement the said protection. In 1982, provisional building restrictions were imposed on the area until a relevant study be completed. This led to a Presidential Decree, issued in 1984, which regulated touristic development and land use close to the nesting areas. In 1984 a project aimed at assessing the nesting population and identifying factors affecting turtle breeding started in cooperation with Greek Universities and with financial assistance from the EEC. Furthermore, since the 1985 nesting season, wardens are employed by the Prefecture of Zante to guard the main nesting areas during the touristic period. Informative leaflets were also published and distributed to tourists by the Sea Turtle Protection Society, a non-governmental organization. The Society has, also, made presentations to schools as part of its schoolchildren awareness programme and since 1986 established an information center on Laganas beach.

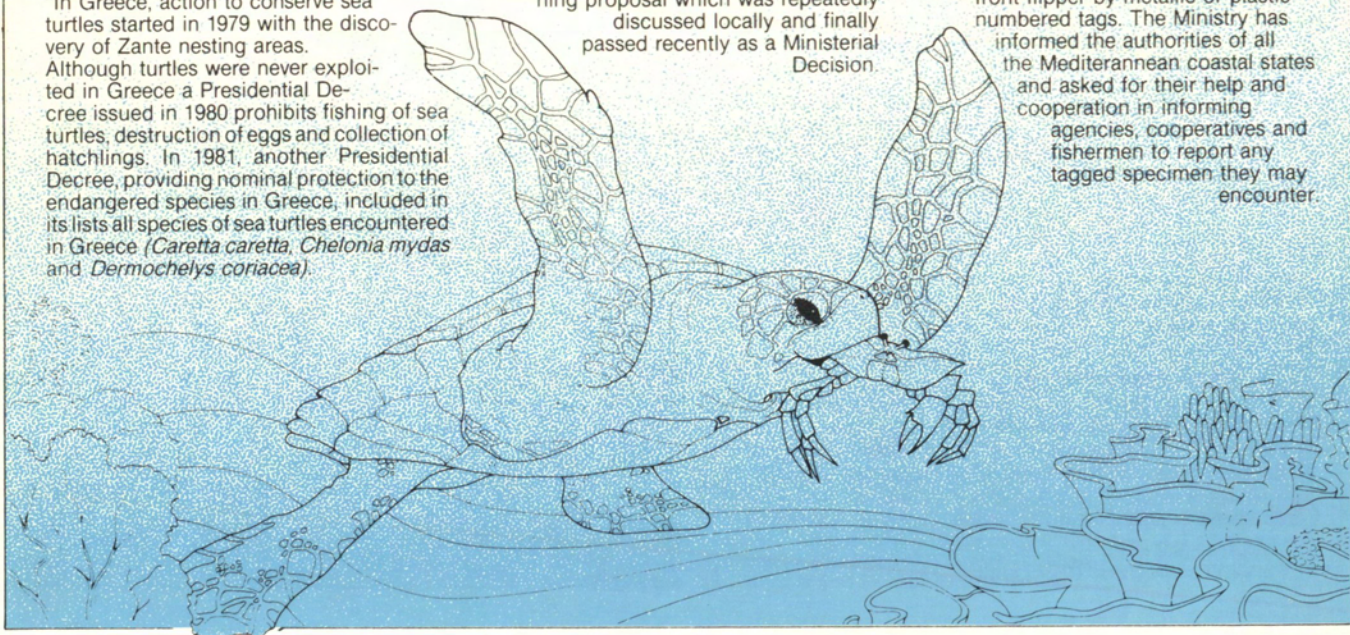
Nevertheless, the imposed developmental restrictions close to the nesting areas, were met with opposition by the local people who seemed to consider the regulations as a major drawback to the opportunities offered by the increasing tourism. A study investigating the developmental potential of the wider area, resulted in a physical planning proposal which was repeatedly discussed locally and finally passed recently as a Ministerial Decision.

The new Decision retains the same protection measures imposed by the 1984 Decree and includes additional measures protecting explicitly sea turtles. These additional measures concern regulation of human activities on the beaches, control of artificial lights, etc. On the other hand the Decision solves long - standing local problems, hindering proper development, and assigns development zones not affecting the protected sites.

For the successful application of this Ministerial Decision, a detailed management programme has been elaborated by the Ministry of the Environment and 55 million drachmas have been forwarded to Zante as a start for its implementation. It must be noted however, that land acquisition or other forms of compensation, necessary to safeguard, at least, the most critical areas will need much greater funds".

After the new Ministerial Decision of 1987 was issued (defining two zones of protection that cover the most important beaches for egg laying) and during this early stage of implementation, it seems that the restrictions it introduces have been, more or less, accepted by the locals.

The Ministry of the Environment, Physical Planning and Public Works in close cooperation with member scientists of the Sea Turtle Protection Society has undertaken to collect data concerning the investigation of the migration of sea turtles in the Mediterranean. For this reason approximately 1,000 *Caretta caretta* have been tagged and released so far. Tagging is done on the left front flipper by metallic or plastic numbered tags. The Ministry has informed the authorities of all the Mediterranean coastal states and asked for their help and cooperation in informing agencies, cooperatives and fishermen to report any tagged specimen they may encounter.



NATIONAL NETWORK FOR THE MONITORING OF INLAND WATERS QUALITY

The National Network was designed in the summer of 1986 by the Water Department, Directorate of Environment, of the Greek Ministry of the Environment, Physical Planning and Public Works, according to the provisions of Law 1650/86 and the Ministerial Decision No 46399/ 1352/86 about the conformation of the Greek Legislation to the Law of the EEC. The regional branches of the competent authorities cooperate since the first stage.

The River Basin is the geographical unit of this Programme, which includes:

- codification of water sheds;
- Existing water quality monitoring programmes;
- Parameters examined;
- Maps depicting sources of pollution;
- Existing laboratory infrastructure;
- Proposed sites of sampling;
- Proposed Parameters;
- Instructions for sampling and analysis and
- Tables of prefectures' decrees concerning the definition of the uses of water and of special conditions for the dumping of wastes.

The direct target of this programme is to create a functional system for the monitoring of the water. The programme has been submitted to the EEC for financing through the Integrated Mediterranean Programmes (IMPs) with a proposed budget of 1 bn drs for a period of 6 years.

The final targets of this programme are to design a correct planning of polluting activities from a physical planning point of view and to define the uses of the rivers and the conditions for dumping wastes, which can not be achieved without knowledge of the water quality and the simulative capacity of the rivers.

Phase One of the programme will be limited to the monitoring of river waters but its planned to expand to lakes, bathing waters and wastes' quality in future phases.

Greece was divided in 12 River Basins, the following (in parenthesis the number of Rivers and the total number of sampling sites per Basin):

Thrace (4/17), Eastern Macedonia (1/3), Central Macedonia (3/9), Western Macedonia (8/13), Thessaly (1/15), Hepirus (7/23), Western Sterea Hellas (3/9), Eastern Sterea Hellas (3/17), Northern Peloponnese (7/12) Western Peloponnese (3/7), Eastern Peloponnese (2/5) and Crete (to be studied). (Two more river basins remain to be studied: **Attica**, and the **Aegean Islands**) Total of Sampling Sites 130 in 42 rivers. 12 Regional centres, equipped with instruments, will be created, one in each River Basin. Recording and processing of the data will be achieved through computer.

The parameters to be monitored are the following: Water temperature, Water flow, pH, turbidity, colour, floatable matter, conductivity, COD, BOD₅, DO, N-NH₄, N-NO₂, N-NO₃, N-TKN, (Ortho)-PO₄⁻³, total phosphorus, chlorophyll-a, metals, pesticides, PCBs, faecal coliforms and faecal streptococci.

PROTECTED COASTAL AREAS

(in brackets their surface).

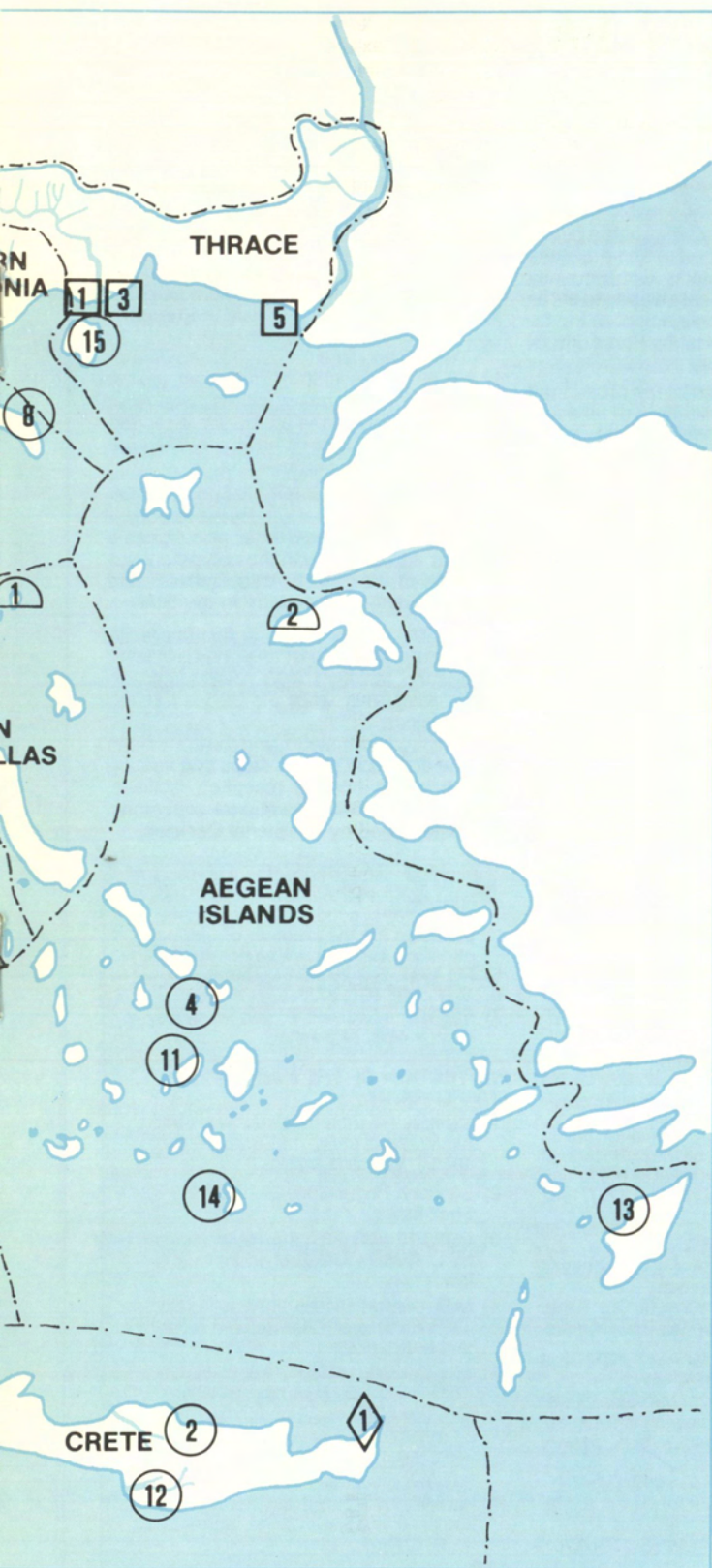
△ National Parks (Total 10, Coastal 2)

- 1) Samaria/Crete (4,850 ha)
- 2) Sounio/Attica (750 ha central, 2,750 ha peripheral zone)

◇ Aesthetic Forests (Total 19, Coastal 4)

- 1) Vai/Crete (0,2 km²)
- 2) Pefkias/Peloponnese (0,275 km²)





- 3) Nicopoli/Preveza (0,66 km²)
- 4) Skiathos (30 km²)

△ **Monuments of Nature** (Total 45, Coastal 2)

- 1) Island of Piperi/Sporades (4.380 km²)
- 2) Petrified forest of Sigri/Lesbos 0.1 km² marine, 0.41 km² rest)

□ **Ramsar Wetlands** (Total 11, Coastal 7)

- 1) Delta of Nestos (500 km²)
- 2) Amvrakikos Gulf (length of coasts 256 km)
- 3) Porto Lagos lakes: of Mitrikon and lagoons of Aliki, Fanari, ratza etc (16,5 km²)
- 4) Delta of Axios, Loudias, Aliacmon
- 5) Delta of Euros
- 6) Lagoon of Kotykhi
- 7) Lagoon of Messolonghi (28 km²)

HISTORIC SITES OF COMMON MEDITERRANEAN INTEREST IN GREECE

The 17 states that have joined MAP are among the countries with the most important history and cultural heritage in the world. A need to safeguard that heritage, that belongs to Humanity as a whole, has risen during the last decades of intense industrial, urban and tourist development.

The Fourth Ordinary Meeting of the Contracting Parties adopted unanimously the Genoa Declaration that includes, among its other targets, "the identification and protection of at least 100 coastal historic sites of common interest".

The Secretariat requested the help of ICOMOS (the International Council of Monuments and Sites, UNESCO) for the preparation of general principles and criteria.

ICOMOS come up with a set of criteria according to which the cultural good must

- 1) illustrate one of the great civilizations.
- 2) have had a considerable influence on the development of architecture or the arts in a specific region of the Mediterranean
- 3) have played a major role in the history of trans-Mediterranean relations
- 4) illustrate an autochthonous culture which is specific to the Basin
- 5) finally, be directly and materially associated with a major event of Mediterranean history (this criterion is used only in conjunction with at least one of the other 4 criteria).

Furthermore it is stated that if a specific cultural good has suffered serious and irreversible changes, it cannot be proposed for inclusion in the list, even though it might have a great historical value.

According to those criteria it is apparent that the island and coastal states will be favoured in the selection process and that no proposal can be made for an equal number of sites in each Contracting Party. Countries like Italy and Greece are favoured by the combination of their peninsular and insular profiles and their total area. "This" stresses a UNEP document "is, of course, independent of the fact that historical circumstances have made these countries *par excellence* the cradle of civilizations, empires and peoples that for centuries occupied, dominated and shaped the Mediterranean area".

The list proposed by ICOMOS is not, of course, final. It may undergo modifications by the concerned countries. Besides it does not include only coastal historic sites, as the Genoa Declaration mentioned, but inland ones as well. The "ICOMOS 100" list includes 16 historical sites of Mediterranean interest located in Greece (numbers refer to the map):

- 1. Athens 2. Cnossos 3. Corfu 4. Delos 5. Delphi 6. Epidaurus and Nafplion 7. Meteora (natural / cultural site) 8. Mount Athos (natural / cultural site) 9. Mycenae 10. Olympia 11. Paros and its quarries 12. Phaestos 13. Rhodes 14. Thera (natural / cultural site) 15. Thassos and its quarries 16. Tiryos

PORT RECEPTION FACILITIES

THE establishment of port facilities for the reception of oil, chemicals and wastes is a provision included in, both, Law 743/77 (about the protection of the marine environment) and MARPOL (as ratified by Law 1269/82).

The Ministry of Mercantile Marine, after defining the priorities and needs, and bearing in mind the traffic, of the country's ports, selected 11 harbours in which reception facilities should be established as a matter of priority: Piraeus, Elefsis, Salonica, Kavala, Patras, Khalkis, Corfu, Syros, Rhodes, Heracleion and Volos. Later on it was decided that the Elefsis harbour should be served by the Piraeus facility.

For 9 out of the 10 remaining ports, feasibility studies have been completed (The municipality of Patras has not accepted the establishment of a port reception facility and the matter remained pending until September 1986, when the solution of a permanent floating facility was adopted. It is estimated that it will cost 336,000 ECUs (about 47 m drs) of which 50% is covered by the EEC (MED SAP). According to the studies concerning the remaining 9 ports, the budgets of the projects are as follows (a 24% increase should be calculated, 18% being the contractors' profit and 6% VAT - 1985 prices in million drachmas): Volos 273, Salonica 258, Kavala 185, Corfu 161, Heracleion 142, Rhodes 255, Khalkis 91, Syros 114, Piraeus / Elefsis 455 (1986 prices).

The projects have not yet been included in the Public Sector Investment Plan, due to lack of funds. It is hoped that they will be included in fiscal year 1988.

According to the knowledgeable sources there are no greek companies of the public sector efficiently equipped to undertake the construction of the projects. Consequently private business will be called upon to act as the contractor. The management of the facilities will be entrusted to the Port Authorities and Harbour Funds.

Since the completion of the project will require a considerable amount of time and resources, alternative courses of action were examined, and provisional alternative solutions were selected to cover the existing needs: In the ports of Piraeus, Salonica, Syros and Khalkis floating reception facilities were established. In the rest of the selected harbours, until similar floating facilities can be installed, other methods of receiving wastes are applied. The commonest interim method of this sort is to load the wastes on special trucks and dispose of them in appropriate installations for their processing. All oil terminals are equipped with reception facilities.

Two floating facilities serve efficiently ports at this moment: Piraeus / Elefsis (owned by a private company) and Syros (owned by Neorion, Syros' shipyards, whose port facility is of limited potential.)

Mr Yatras is the owner of "VERA", the company that serves the ports of Piraeus and Elefsis. Says he: "The floating reception facility comprises of a floating separator and collecting ships. The company has signed a 10-year agreement with the Piraeus Port Authority. Fees (ranging from 20,000 to 200,000 drachmas per ship) have been agreed upon and published in the Government Gazette. We offer the lowest price lists in Europe".

The floating facility costed approximately 2,5 m dollars (350 m drs). Last year it received 400,000 tons of oil residues. After processing them the company exported about 15,000 tons of oil products. The facility employs about 30 persons.

The company is negotiating with the Harbour Fund of Heracleion for the establishing of similar facilities. It has also signed a 10-year agreement with the competent authorities of the United Arab Emirates and serves ports of that country in the Gulf.

"VERA" is specialized in floating facilities. Yatras stresses that "the trend is in favor of floating facilities. IMO prefers them to land-based ones, while the EEC is funding pilot projects".

The legal framework and the conditions for the definition of such ships and floating structures as floating reception facilities, according to the international provisions, are determined by Ministerial Decision.

T H E • L E G A L • F R A M E W O R K

L = Law
PD = Presidential Decree
MD = Ministerial Decision

NCPPE = National Council for Physical Planning and the Environment

MMM = Ministry of Mercantile Marine
GG = Government Gazette
(Number/Section/Date)

RATIFICATION OF INTERNATIONAL CONVENTIONS

- 1) London Convention 1954/62: L 4529/66 (GG 154/A/66)
- 2) International Convention for Civil Responsibility for damages from oil pollution 1969: L 314/76 (GG 106/A/76)
- 3) Barcelona Convention: L 855/78 (GG 235/A/78)
- 4) Geneva Convention 1958: L 1182/72 (GG 111/A/72)
- 5) Ramsar Convention: L 191/74 (GG 350/A/74)
- 6) London / Mexico / Moscow / Washington Convention 1972: L 1147/81 (GG 110/A/81)
- 7) International Convention for the preservation of wildlife and natural environment in Europe: L 1335/83 (GG 32/A/83)

8) Cultural Heritage. Paris Convention: L 191/74 (GG 350/A/74)

9) MARPOL L 1269/82

10) Ratifications of Protocols III and IV to the Barcelona Convention (L 1634/86)

11) SOLAS 74 Convention: L 1045/80 (GG 95/A/80)

BILATERAL AGREEMENTS

- 1) Ratification of the Greek - Italian agreement (1979) on the protection of the marine environment of the Ionian Sea and its coastal zones L. 1267/1982 (GG 85/A/82)

FUNDAMENTAL LAWS

- 1) L 743/77 (GG 819/A/77): protection of the marine environment.
- 2) L 1650/86 (GG 160/A/16 Oct 1986): Framework Law on the Environment.

PROTECTION OF MARINE SPECIES AND THEIR BIOTOPES

- 1) NCPPE Decision 28/2/80 (GG 13.3.80 Section B) (Caretta, Monachus in Samos, Sporades' marine park, Amvrakikos' ecosystem)
- 2) PD G17/80 (GG 163/A/80) Caretta
- 3) PD 67/81 (GG 23/A/81) Caretta, Monachus, fish.
- 4) NCPPE Decision 11/81 (GG 551/B/81)

provision for the creation of marine parks in Lesbos and Megalonisi

- 5) PD 1984 (GG 260/D/84) Caretta
- 6) M.D. 1987 (GG 37/D/87) Caretta
- 7) Prefecture Decision 3-9-86: Sporades marine park, Monachus

PROTECTION OF THE MARINE ENVIRONMENT

- 1) Sanitary Regulation E 1B/221/1965 (as modified in GG 138/B/801/B and 986/B): industrial wastes.
- 2) Sanitary Regulation C 1C/6000/67: Shell fish.
- 3) L 420/70 (GG 27/A/70) (as modified by L 1038/71 GG 238/A/71): fishing law
- 4) M.D. (MMM) 181051/2079/1978 (GG 1135/B/78): prohibits dumping of certain substances.
- 5) MD (MMM) 181051/2080/1978 (GG 1135/B/78) port reception facilities
- 6) MD (MMM) 181051/1985/1980 (GG 1110/B/80) chemicals in the sea.
- 7) MD (MMM) 181053/593/1983 (GG 177/B/83) pollution by hydrocarbons.
- 8) MD 46399 (GG 1352/B/86) water quality conformation of greek legislation to EEC Directives.



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Annual subscription is 50 FF.

THE MAP BROCHURE IN HEBREW. The last edition of the MAP pamphlet to be published in a Mediterranean language, Hebrew, appeared recently. The brochure explains the purpose and the activities of the Mediterranean Action Plan.

WATER RESOURCES DEVELOPMENT OF SMALL MEDITERRANEAN ISLANDS AND ISOLATED COASTAL AREAS, documents produced in the first phase of the PAP (1984-1985), MAP Technical Reports Series No 12, UNEP PAP/RAC, Split, 1987

ONE EARTH, ONE HOME, collected speeches of Dr M.K. Tolba, Executive Director of UNEP, Nairobi, Kenya, 1987.

Ten chapters form this small but interesting book. Their titles are representative of the wide range of subjects that are of interest to the head of the United Nations Environment Programme: Human Settlement - the man made ecosystem, Consensus - counting the cost, Bursting at the Seams, A Maze of choices, Standing on common ground, The peril of two cities, Poverty - too close to Home, A Big Future for the Small Town, Building on tradition and Shelter for the homeless.

Notes Tolba in his foreword "More than a Roof".

"Oikos" was the ancient Greek word for a house. From it the modern European languages have taken two new words. The first is "economy" which means literally "to manage the house". The other is "ecology" which means "to oversee the house". In the modern world the link between ecology and economy is often missed, but without them both it is clear that the global household will never prosper."

GREENHOUSE EFFECT AND SEA LEVEL RISE, A Challenge for This Generation Edited by Michael C Barth and James G Titus, Foreword by William D Ruckelshaus, Van Nostrand Reinhold Company, New York, USA.

W D Ruckelshaus, Administrator of the EPA in the US notes in his Foreword:

"I recommend your careful reading and consideration of the report. I think you will find that the matter of sea level rise is not an issue of the sort that Anwar Sadat had in mind when he jocularly said, "These are questions for the future generation". Just as the nations of the world are inexorably becoming more interdependent, so are the fates of the present and future generations. The issues raised in this report and the implications I have suggested are so important that we must begin to consider them today".

The editors note in their Preface:

"Increasing concentrations of atmospheric carbon dioxide and other gases are expected to cause a global warming that could raise the sea several feet in the next century. In the spring of 1982 the U.S. Environmental Protection Agency organized a project to estimate the magnitude of future sea level rise, its effects, and the value of policies that prepare for these consequences. This book builds upon that effort.

Chapter 1 provides an overview of this book and is written for a general audience. Chapters 2 through 9 are for the more specialized reader. Chapter 10 provides the reactions of six prominent coastal decision makers to the rest of this book; it is written for the general reader".

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THE MAP CALENDAR OF MEETINGS

SEPTEMBER - DECEMBER

Fifth Ordinary Meeting of the Contracting Parties to the Barcelona Convention 7-11 Sept. Athens

Consultation meeting on microbial pollution in Mediterranean coastal areas and associated health effects 21-25 Sept. Athens

Seminar on tourism 22-25 Sept. Split

Ad-hoc Meeting on Organotin compound 5-7 Oct. Athens

Experts meeting on liquid waste-manual 5-7 Oct. Split

Practical training course on combating oil pollution (MEDEXPOL 87) 13-20 Oct. Marseille

Ad hoc Meeting on floating/sinking litter 14-16 Oct. Athens

Subregional training course in EIA 26-30 Oct. Algeria (Tentative)

Training course on modelling of dispersion of substances released through coastal outfalls 26-31 Oct. Athens

Workshop on the Impact on of carcinogenic and mutagenic marine pollutants on health and the Environment 9-11 Nov. Rome

Ad-hoc Meeting on Organophosphorous Compounds 18-20 Nov. Athens

Consultation Meeting on monitoring of land-based pollution sources 23-27 Nov. Split

Workshop to review preliminary results of a pilot project and relevant research on airborne pollution in the Mediterranean region Nov. Yugoslavia

Workshop on re-use of treated urban waste 18-20 Nov. Split

Training course in renewable energies (solar) 7-11 Dec. Almeria (Tentative)

Experts meeting to review results of ongoing research projects on work of transport of pollutants by sedimentation 9-12 Dec. Villefranche

THE CHILDREN OF THE BRINE AND HOW TO SAVE THEM

The N. Sporades Marine Park

"That old seer emerges from his native salt.... Once out, he makes for his sleeping place in the shelter of a cave, and those children of the brine, the flippered seals, heave themselves up from the grey turf and go to sleep in herds around him..."

Homer, *Odyssey*,
Rhapsody Δ 401-406

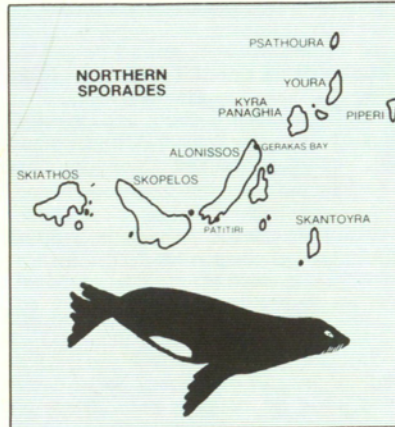
Monk seals lived in the eastern part of the Mediterranean since the time Homer composed his epic poems. Only about 450 specimen live today in the whole region; about 350 seals live in the Greek waters, according to the most recent count, carried out by Greek and foreign universities and financed by the Greek Government and the EEC.

Several factors, which we analyzed in an article in the previous issue of "MEDWAVES", have contributed to the decrease of the number of monk seals during the last decades. The Greek Government, in view of the problem, has decided to create the Northern Sporades Marine Park in order to protect the monk seal, but also a score of other species of flora and fauna that live in the area. The wider area of the park includes the islands of Skiathos, Skopelos and Alonissos. The main zone extends around the islets of Kyra-Panaya, Yura, Skantzoura, Psathoura and the core of the park, the island of Piperi. 47 square kilometers of land mass are included in the area of the park.

The Northern Sporades Marine Park is the first marine park in Greece and, also, the first one in the Mediterranean where one can meet the monk seal.

Says specialist Thanassis Economou, of the Ministry of the Environment: "Vegetation is exceptionally rich on the Northern Sporades, with a wide and unexpected variety in the plant life even between neighbouring islands. The Northern Sporades are an important stopping point in the southward migration of birds. Birds are abundant in the migrating season, especially the falcon and a large number of seagulls. The wide goats of Yura complete the prelevant fauna of the islands".

The Greek strategy for the preservation of the monk seal is based on a simple principle: that saving a species cannot be done through imposing prohibitions. The park will be open to activities, which, of course, will be controlled,



350 out of 450 monk seals that live today in the Mediterranean can be found in Greek waters. The Greek authorities have drawn up a programme for the conservation of this beautiful animal, first on the list of endangered species compiled by the EEC, that includes the establishment of a national marine park in the Northern Sporades islands' complex where they can be found in larger numbers than, possibly, anywhere in the world.

and its management will be based on an overall programme for the conservation of natural resources in the area. This means that fishing will be allowed, but under specific conditions, tours will be organized for the tourists but not uncontrolled visitation of the islands will be accepted. Visitors will be toured in groups and recreation boats will not be allowed to enter the area of the park. Special boats will be purchased to patrol the area. The help and participation of the local population is a *sine qua non*.

Fishermen used to have a negative reaction to conservation measures because they considered the monk seal as a major threat to their catch and as a destroyer of their fishing nets. The Greek officials are anticipating a programme according to which the fishing nets of the local fishermen will be gradually replaced by special nets, starting in October 1987.

Protection and conservation of the monk seal and the other species in the park is based on the Prefecture Decision 1030/25.8.1986. A Ministerial Decision will probably be published in

September. This new legal framework will be based on the new law for the preservation of the environment and the report prepared by the National Polytechnic School-Section of Geography and Regional Planning.

On the island of Alonissos a Research Station will be established. Its infrastructure will include two fully equipped laboratories for basic research on inland, coastal and marine ecosystems, research on the monk seal and other species, either endangered or not (e.g. dolphins, whales etc) a library, a museum, accommodation for visiting scientists, 3 pools for basic research on seals and other organisms and a small harbour. It is expected that until early 1988 16 people will be living permanently on the island of Piperi: 4 scientists, 1 administrative officer, 5 watchmen and a crew of 6 people that will man the patrol boats.

The greek authorities are planning to establish a network of research centres in order to monitor in a more co-ordinated way the migration and social behaviour of the monk seals. The network will help create an emergency action plan in order to help wounded seals. Five areas were selected for that purpose. The criteria for their selection were the frequent occurrence of monk seals and the existence of a research centre or a University. These areas are (in brackets the research organization): The Dodecanese (Rhodes' aquarium), Northern Aegean (Aegean University), Sea of Crete (University of Crete), the Cyclades Archipelago (research station of Alonissos - University of Athens) and the Ionian Sea (University of Patras).

A long - term target of the Greek authorities is to expand the scope of the research station on Alonissos; they hope to establish a Regional Activity Centre for the protection of the monk seal in the Mediterranean. The Greeks believe that by the time the creation of such a RAC is decided, scientists and administrators in Greece will have acquired the know-how and will have the experience to help other Mediterranean coastal states to safeguard their own populations of *Monachus monachus*.

Meanwhile a European Conference on Island and Marine Ecosystems is to be organized in Greece, probably on Alonissos, in late 1988 or early 1989. Its scope will cover the whole of the Mediterranean Basin.