



United Nations
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UNEP(OCA)/MED IG.1/3
20 July 1989

Original: ENGLISH

MEDITERRANEAN ACTION PLAN

Sixth Ordinary Meeting of the Contracting Parties
to the Convention for the Protection of the
Mediterranean Sea against pollution and its
related protocols

Athens, 3 - 6 October 1989

RECOMMENDATIONS SUBMITTED FOR ADOPTION



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The Contracting Parties are invited to adopt the following recommendations agreed upon by the Joint Meeting of the Scientific and Technical Committee and the Socio-Economic Committee held in Athens 26-30 June 1989 (UNEP(OCA)/MED WG.3/4):

A. IMPLEMENTATION OF THE BARCELONA CONVENTION AND PROTOCOL ON DUMPING

1. PROGRAMME APPROVAL THROUGH DECISION-MAKING MEETINGS

Convene every year a joint meeting of the Scientific and Technical Committee and of the Socio-Economic Committee to review the progress of the Action Plan and to prepare the decisions of the Contracting Parties.

2. PROGRAMME CO-ORDINATION

Invite the secretariat to strengthen co-operation with financing institutions with a view to their participation in MAP activities, and particularly in coastal zone pilot projects.

3. LEGAL COMPONENT

1. Authorize the Secretariat to prepare an assessment and a draft Protocol, if necessary, to implement the provisions of the Basel Convention on the control of transboundary movement of hazardous wastes and their disposal in the Mediterranean Sea area.
2. Authorize the Secretariat to develop draft procedures for liability and compensation.
3. Authorize the Executive Director to convene in 1990 a Conference of Plenipotentiaries to consider the draft Protocol on Exploration and Exploitation of the Continental Shelf and the Sea-bed and its Sub-soil, subject to the recommendations of the Working Group of experts nominated by the Contracting Parties.

4. MONITORING OF MARINE POLLUTION IN THE MEDITERRANEAN

1. Monitoring Programme

(i) Take note of the recommendations of the Meeting of Responsible Investigators of Monitoring Programmes (document UNEP(OCA).MED WG.5/3);

(ii) Endorse the following recommendations:

- In view of the assessment of the present situation and recent encouraging developments in the collection of data and data quality assurance programmes, it is recommended that the MED POL-Phase II monitoring programme be extended for four additional years (until 1995) to enable full participation of all Mediterranean countries and to allow for a proper evaluation of the situation at a regional level;
- In the light of the experience gained so far it is considered important that national monitoring programmes be designed in such a way that they ensure assessment of the state of pollution but also simultaneously lead to solution of defined scientific and environmental problems and motivate both young and experienced scientists to participate in the monitoring programme;
- In this context, a scientific in-depth assessment on monitoring itself should be promoted on the basis of past experience in order to prepare the programmes to be implemented in 1995 in the best possible way;
- Particular emphasis should be given to the improvement of the geographical coverage of the monitoring programmes in the South of the Mediterranean.

2. Plankton blooms and eutrophication

(i) Take note of the recommendations of the Meeting of Experts on Implications and Control of Undesirable Plankton Blooms (document UNEP(OCA)/MED WG.4/2);

(ii) Provide funds in the budget for assistance to institutions for monitoring of plankton blooms and eutrophication;

3. Impact of climatic change on the Mediterranean coastal zone

Approve the continuation of studies of the impact of climatic change on the Mediterranean coastal zone in the light of the importance of the problem and the basis of the work done so far.

5. INFORMATION

Combine the existing information bulletins (Medwaves, PAP Bulletin, ROCC News, SPA Bulletin) into one single bulletin, Medwaves, to be issued in Arabic, English and French.

B. IMPLEMENTATION OF THE LBS PROTOCOL

6. IMPLEMENTATION OF THE LBS PROTOCOL

1. Pollution by used lubricating oils

Adopt the:

- (i) Assessment of the situation regarding used lubricating oils in the Mediterranean Basin

Lubricating oils are essential for many industrial and transportation purposes as well as for a number of other uses. Following their use, they represent a potentially serious pollution threat, as they can reach the marine environment via municipal and industrial wastewaters and urban run-off. For this reason, used lubricating oils have been included in Annex I to the Protocol for the Protection of the Mediterranean Sea against pollution from land-based sources which contains substances pollution by which Contracting Parties have undertaken to eliminate.

In the absence of direct data from all countries in the region regarding production and consumption of lubricating oils and the eventual fate of the used product, it is not possible at this stage to make an accurate assessment of the actual state of pollution of the Mediterranean Sea by used lubricating oils in the specific sense. However, extrapolation of data available from other regions on the used lubricating oil or petroleum hydrocarbon content of urban run-off and municipal and industrial wastewaters, together with available information on population numbers, industrial activities involving used lubrication oil generation, and vehicular figures in the coastal zone of the Mediterranean affords a reasonable indication that a significant marine pollution problem could actually or potentially exist in the region.

Apart from the four Mediterranean states members of the Commission of the European Communities, which are expressly bound by the terms of EEC Directive 75/439/EEC of 16 June 1975, as amended by Directive 87/101/EEC of 22 December 1986, specifically dealing with the disposal of waste oils, few of the other countries in the region currently possess specific legislation for dealing with marine pollution by used lubricating oils, although partial coverage through more general legislation exists in a number of cases.

(ii) Measures for control of pollution by used lubricating oils

On the basis of the assessment prepared by UNIDO/WHO/UNEP on the situation regarding used lubricating oils in the Mediterranean basin (document UNEP(OCA)/MED WG.3/Inf.4) the Contracting Parties:

- (a) adopt, for the purposes of Article 5 and Annex I to the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources, the following definition of used lubricating oils:

"Any mineral-based industrial or lubricating oils which have become unfit for the use for which they were originally intended, and, in particular, used oils from combustion engines and transmission systems, and also mineral lubricating oils, oils for turbines and hydraulic oils, whether such oils are contaminated by dangerous chemical substances, such as PCB, or not";

- (b) adopt the principle that wastes containing used lubricating oils should not be discharged directly or indirectly into the protocol area;
- (c) undertake to progressively implement, through appropriate national procedures, programmes and measures to ensure the eventual realisation of this principle as early as possible to the extent dictated by national circumstances and not later than 1 January 1994;
- (d) take into account, as and where appropriate, in the progressive formulation and implementation of national control measures, the various control measures available, i.e. recovery, and either:
- regeneration for re-use as lubricating oils or burning as fuel in an appropriate installation, if one of these two solutions is feasible in the case of used lubricating oils which are not contaminated by dangerous chemical substances; or
 - treatment and disposal in specially-designed units in the case of all other used lubricating oils.

2. Pollution by cadmium and cadmium compounds

Adopt the:

(i) Assessment of the state of pollution of the Mediterranean Sea by cadmium and cadmium compounds

Cadmium is a scarce, naturally occurring and fairly expensive metal of low mechanical strength. Its yearly world production is about 18,000 tons. Mediterranean countries account for about 10% of this. It is mainly used in batteries, electroplating, pigments, stabilizers and alloys. It reaches the marine environment from contaminated agricultural soils, mining wastes, mine waters, and the industrial use of cadmium. An important source is municipal sewage effluents and sludges, including those of domestic origin. No reliable data on cadmium inputs are available. The currently available technology for the removal of cadmium from industrial waste waters is based on physico-chemical methods such as ion exchange, reverse osmosis, dialysis and electro dialysis, adsorption, evaporation, electrolysis, freezing, ion flotation, liquid-liquid extraction and ultrafiltration. Phosphatic fertilizer manufacturers can also decrease the cadmium concentration in their product by choosing raw phosphate with low cadmium content.

Levels of cadmium reported for the various compartments of the Mediterranean marine environment are not alarming and in general they are comparable to those found in other regions of the world. Data available for air are limited to the western Mediterranean. The lack of proper quality control and the diversity of analytical methods used do not allow a comparison of the seawater data. Levels of up to 2 mg Cd l^{-1} have been reported for coastal waters. Only in coastal lagoons and river deltas were cadmium concentrations high in sediments. Research workers use different extraction methods and many of them do not take into consideration the mineralogical composition of the sediment. It is estimated however that the background concentration must be in the range of 0.1 to $2.5 \text{ } \mu\text{g g}^{-1}$ (DW). Typical cadmium levels in biota are 50 - $150 \text{ } \mu\text{g kg}^{-1}$ (FW) for shrimps, 40 - $1200 \text{ } \mu\text{g kg}^{-1}$ (FW) for mussels and 20 - $150 \text{ } \mu\text{g kg}^{-1}$ (FW) for demersal fish.

The uptake of cadmium in marine organisms depends both on the chemical species of cadmium and on the route of entry into the organism. Cadmium is slowly accumulated at low water concentrations and therefore only low-term chronic exposures can be used to estimate the toxicity of this metal. In fact 96-h LC_{50} s for a wide range of species are usually in excess of 1 mg Cd l^{-1} while chronic effects usually become apparent at concentrations greater than $50 \text{ } \mu\text{g Cd l}^{-1}$. However, some species have been reported to be affected at concentrations less than $15 \text{ } \mu\text{g l}^{-1}$. A concentration of $0.5 \text{ } \mu\text{g l}^{-1}$ could be an eventual water quality objective.

In general, cadmium in seafood constitutes only a small fraction of the total daily intake. Terrestrial food and smoking are much more important for humans who are non-occupationally exposed. A provisional tolerable weekly intake of 400 to 500 µg of cadmium for an average person was proposed in 1972 by FAO/WHO. At this stage, it is not considered that the adoption of a common regional legal limit on the permissible concentration of cadmium in seafood would be justified.

A limitation on the amount of cadmium discharged into the marine environment is recommended. Some countries in the Mediterranean have already set effluent standards. The EEC countries have to apply directive 83/513/EEC of 26/9/83 which sets limits for effluents from various industrial sectors. No limit is set for the manufacturers of phosphatic fertilizers.

(ii) Measures for control of pollution by cadmium and cadmium compounds

On the basis of the assessment prepared by FAO/WHO/UNEP (document UNEP(OCA)/MED WG.3/Inf.5), the Contracting Parties as from 1 January 1991:

- (a) adopt a limit value of 0.2 mg cadmium per litre discharged (monthly flow-weighted average concentration of total cadmium) for effluent discharges from industrial plants into the Mediterranean Sea before dilution in terms of Article 5 and Annex I of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources.

The above limit value does not apply to the phosphate fertilizer industry, but each Mediterranean country should fix its national value pending a new decision by the Contracting Parties;

- (b) agree to use the following procedure for the implementation of the above value:

A sample, representative of the discharge over a period of 24 hours will be taken. The quantity of cadmium discharged over a month must be calculated on the basis of the daily quantities of cadmium discharged. However, a simplified control procedure may be instituted in the case of industrial plants which do not discharge more than 10 kgs of cadmium per year;

- (c) adopt, in principle, an eventual water quality objective of a maximum of 0.5 µg cadmium per litre in marine waters;

- (d) for the purpose of progressively reaching the objective, adjust relevant outfall structures in such a way as to achieve maximum dilution in the mixing zone adjacent to the outfall and monitoring sediments and biota to ensure an increase of not more than 50% above background levels in the case of new plants, and achieve a progressive decrease towards the same objective in areas affected by existing plants;
- (e) consider, if national or local circumstances so dictate, the imposition of limit values for concentrations of cadmium in edible marine organisms;
- (f) include, to the extent possible, the sampling and analysis of appropriate species of edible seafood and of appropriate effluents for cadmium within the framework of their national MED POL monitoring programmes;
- (g) encourage the development of substitutes and alternative technologies leading to the reduction of cadmium pollution;
- (h) provide the Secretariat to the Convention with the fullest information possible on:
 - present legislation and administrative measures on existing national standards and criteria on permissible limits of cadmium concentrations in seafood cadmium emissions into the marine environment, and water quality regarding cadmium;
 - measures taken relevant to (a), (b), (c), (d), (e), (f) and (g) above.
 - relevant monitoring data on (f) above.
- (i) continue to support, within the framework of the research component of MED POL those studies on seafood consumption patterns which can be utilised, in conjunction with monitoring data on cadmium concentrations in seafood, to identify possible high risk groups.

3. Pollution by organotin compounds

Adopt the:

(i) Assessment of the state of pollution of the Mediterranean Sea by organotin compounds

The worldwide production of organotin compounds had risen from a very low level in the late 1940's to more than 30,000 tons per year at present. It is estimated that about one third of this amount is used for biocidal purposes which can be divided equally between uses in agriculture and for antifouling treatments. The main uses of antifouling agents are in cooling-water pipes for electric power plants and other industries such as chemical and steel factories, and in paints for boats, ships, and marine structures. The compounds used are mainly tri-organotin compounds and especially tributyltin (TBT) derivatives. Two types of antifouling paints are available: "free association" and copolymer paints. The leaching rate (ie the input rate of these contaminants from the painted surface to the marine environment) from copolymer paints is less than that from free association paints.

At present, little information is available in the current scientific literature on amounts of organotin compounds released into the environment by way of production and processing operations. Estimation of inputs from painted surfaces are based on leaching rates. Assuming a constant release rate of $10 \mu\text{g cm}^{-2} \text{d}^{-1}$, 15 g d^{-1} would be the input into the marine environment from a painted surface of 150 m^2 . Inputs from the use of TBT in protecting pipes against fouling organisms could also be important especially when the water flow is high.

The solubility of TBT compounds is of the order of 10 mg l^{-1} while that for triphenyl (TPT) derivatives is 1 mg l^{-1} or less. In locations where surfaces have been treated with TBT based antifoulants, the levels of TBT can exceed $1 \mu\text{g l}^{-1}$ in water and $10 \mu\text{g g}^{-1}$ in sediments. The results from the pilot survey in selected Mediterranean areas indicate that the following are typical TBT contaminated sites:

- those receiving industrial discharges, mainly related to the use of TBT as an antifoulant in cooling pipes;
- harbours, where commercial shipping activities occur, often together with ship maintenance operations, and which receive large quantities of industrial and other effluents;
- marinas, occupied by pleasure boats;
- mariculture areas.

Marinas have shown to be one of the most polluted areas but values of TBT did not exceed $1,000 \text{ ng l}^{-1}$ except in one case. The degradation products of TBT, dibutyltin and monobutyltin were also detected but in lower concentrations. The highest TBT levels recorded were in front of a power plant outlet in North Tyrrhenian sea. In general, values were similar to those found in similar situations outside the Mediterranean area. Marine organisms are able to accumulate TBT to levels considerably greater than those found in the surrounding water. With a cessation of inputs, TBT concentrations can be lost in a relatively short time (within one year).

The toxic potential of organotin compounds received considerable attention in the 1950's following the "Stalino" incident in France. In the late 1970's French scientists found anomalies in the shell calcification of the Pacific oysters growing in Arcachon bay close to a yacht harbour. Since then, work undertaken demonstrated that TBT, together with methyltins and phenyltins, belongs to the most toxic organotin compounds; even low concentrations in aqueous environments may have adverse effects on sensitive stages of invertebrates as well as vertebrates. The most sensitive effect found for TBT is the development of imposex (change of sex) in certain gasteropod molluscs at concentrations greater than 1 ng l^{-1} .

Triorganotin compounds can enter the human body directly at the workplace where these chemicals are manufactured or formulated, and where formulations are used or removed after use. These compounds can also enter the human body directly, through residues contained in treated vegetarian food or in contaminated seafood. Some of the symptoms in humans are headaches, memory defects, loss of vigilance, disorientation, etc. An acceptable daily intake (ADI) for man was proposed by FAO/WHO in 1971 for the triphenyltin compounds of chloride, hydroxide and acetate, at $0.5 \mu\text{g kg}^{-1}$ body weight. Recent estimates of research workers for the ADI of TBT oxide vary from 1.6 to $3.2 \mu\text{g kg}^{-1}$ body weight.

The first measures for controlling the use of antifouling paints containing organotin compounds were brought by France in 1982. Since then, other countries have followed suite, the most common measures being the ban on the use of TBT paints on vessels smaller than 25m and on mariculture structures. Recently, measures have also been introduced for sea-going vessels. Measures at regional and international level are promoted through the competent organizations.

(ii) Measures for control of pollution by organotin compounds

On the basis of the assessment document prepared by FAO/WHO/IAEA/UNEP (document UNEP(OCA)/MED WG.1/7), the results of the Mediterranean pilot survey (document FIR/MED POL/OT/5) and the deliberations of the First Meeting of the Scientific and Technical Committee (document UNEP(OCA)/MED WG.1/12), the Contracting Parties agree:

- (a) as from 1 July 1991 not to allow the use in the marine environment of preparations containing organotin compounds intended for the prevention of fouling by micro-organisms, plants or animals:
 - on hulls of boats having an overall length (as defined by ISO standards No.8666) of less than 25 m;
 - on all structures, equipment or apparatus used in mariculture.
- (b) to report to the Secretariat on measures taken in accordance with this decision;
- (c) that a code of practice be developed to minimise the contamination of the marine environment in the vicinity of boat-yards, dry docks, etc., where ships are cleaned of old anti-fouling paint and subsequently repainted.

4. Pollution by organohalogen compounds

Adopt the:

(i) Assessment of the state of pollution of the Mediterranean Sea by organohalogen compounds

Relevant information was assembled on the pesticides, DDT, Drins, Heptachlor, HCH, HCB and the industrial compound PCB. No reliable data on the production and use of these compounds is available and the figures for their inputs are rather rough estimates. World literature indicates that the transport of organohalogens from continental sources to the sea by wet and dry deposition is one of the most important sources of contamination of the marine environment by these compounds. Very few data are available on organohalogens in effluents discharged into the Mediterranean sea.

Organochlorine incorporation into biogenic particles, with subsequent migration via chain transfer, or faecal pellet deposition, provides a rapid and ecologically important transport system in the marine environment. The toxicity of some organohalogen pesticides and PCBs to marine organisms is relatively well documented through toxicological investigations performed both in the Mediterranean and elsewhere in the world. This toxicity in combination with their persistence and bioaccumulation properties makes them one of the most hazardous group of compounds for the marine environment.

Using the acceptable daily intake (ADI) recommended by FAO/WHO and the levels of contamination reported, a risk assessment showed association with the consumption of seafood. HCB, HCH and heptachlor is safe for low, and mostly safe for medium consumption, while the intake of DDT and PCB from one fish meal per week elevates life-time risk above 10^{-5} . The drins present intermediate risk but the evidence for their carcinogenicity is very weak.

(ii) Measures for control of pollution by organohalogen compounds

On the basis of the assessment prepared by FAO/WHO/IAEA/UNEP (document UNEP(OCA)/MED WG.3/Inf.6) the Contracting Parties agree as follows from 1 January 1991:

- (a) to adopt an environmental quality objective in coastal waters of 25 ug l^{-1} for total DDT in terms of Article 5 and Annex I of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources;

- (b) to use the International Code of Conduct on the distribution and use of pesticides as adopted by the FAO Conference in 1985;
- (c) to promote monitoring programmes wherever possible for:
- the establishment of trends and baseline concentrations for the organohalogen compounds;
 - the detection of "hot-spot" areas.
- (d) to provide the Secretariat with information on the present legal and administrative measures in force in each country for the production, use and disposal of organohalogen compounds and relevant monitoring data on (c) above.

C. IMPLEMENTATION OF THE PROTOCOL ON EMERGENCIES

7. PREVENTION AND COMBATING POLLUTION FROM SHIPS

a) Protocol on emergencies

Approve the following recommendations, based on those of the Workshop on Combating Accidental Pollution of the Mediterranean Sea by Harmful Substances, held in Malta from 22 to 26 May 1989 (document UNEP(OCA)/MED WG.3/3/Add.1):

- (a) the Regional Centre should undertake the steps necessary for the establishment, on a voluntary basis, of a regional network of correspondents within port authorities and within authorities responsible for vessel traffic services who receive reports of the movements of ships and their cargoes, to assist in collecting data on the maritime transport of harmful substances other than oil in the Mediterranean and to facilitate, in case of accident and where possible, rapid access to information on cargo, including the loading plan;
- (b) a selective list of data concerning the dangerous substances should be prepared, and that a partly computerised data base should be established;
- (c) the Regional Centre should assist States in activities at the national level aimed at collecting data necessary for the establishment in the future of a computerised marine pollution emergency decision support system, taking into account all existing databases, systems and experience gained in this field throughout the world and, in particular, make use of existing sources of cartographic and oceanographic data on the Mediterranean, with a view to adapting the decision system and its simulation models to the region;
- (d) a priority list of substances, based on the highest spillage probability, should be established and that, on the basis of existing information, operational technical files for intervention, including accident scenarios, for these substances should be prepared;
- (e) the Regional Centre should assist Mediterranean coastal States which so request to adapt their national oil spill contingency plans to combating accidents involving other hazardous substances and, in particular, to develop their own data banks compatible with the Centre's data bank, and to prepare bilateral or multilateral operational agreements among neighbouring coastal States;

- (f) alert exercises in order to test use of the standard alert message and the communications network should be organized periodically;
- (g) the Centre using, in particular, the results of the IMO work on the preparation of a "Guide to International Assistance in Marine Pollution Emergencies" should compile and disseminate to the Mediterranean coastal States information on the nature, conditions and procedures by which assistance can be provided by States and organizations;
- (h) the following training courses should be organized during the 1990-1991 biennium:
- a general training course on combating accidental pollution by harmful substances in 1990 and 1991;
 - a regional seminar on financial questions, liability and compensation for consequences of accidents causing pollution by oil and other harmful substances in 1990;
 - a specialised training course on combating pollution by harmful substances in 1991.
- (i) approve the future functions of the Centre as proposed in the draft amended Annex to Resolution 7 contained in Annex VI to the Report of the Workshop on Combating Accidental Pollution of the Mediterranean Sea by Harmful Substances, held in Malta from 22 to 26 May 1989 (UNEP(OCA)/MED WG.3/Inf.9);
- (j) approve the workplan of the future activities related to oil and other harmful substances which should be carried out or co-ordinated by the Centre, as set out in Annex VII of the report of the Workshop (UNEP(OCA)/MED WG.3/Inf.9);
- (k) change name of the Centre to "Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea".

b) Port reception facilities

Promote port reception facilities and inform the Secretariat on progress made.

D. IMPLEMENTATION OF THE PROTOCOL ON SPECIALLY PROTECTED AREAS

8. PROTECTION OF THE COMMON MEDITERRANEAN HERITAGE

a) Protocol on Specially Protected Areas

1. Recommend to the Co-ordinating Unit of MAP, in co-operation with the responsible bodies of the country hosting SPA/RAC, the signing of an agreement between the host country and UNEP on their mutual obligations regarding the Centre.
2. Open a line in the budget to cover one half of the salary of the full time Director of the Centre, as is the case for the other MAP Centres and following the recommendations of UNEP evaluation report "The Regional Activity Centre for the Mediterranean Specially Protected Areas: evaluation of its development and achievements" - UNEP Regional Seas Reports and Studies No. 100. If this budget were approved, SPA/RAC would have a full-time director appointed to the Centre.
3. Request SPA/RAC to assist countries in their endeavour to promote activities relevant to the identification and protection of at least 50 new marine and coastal sites or reserves of Mediterranean interest in accordance with the protocol concerning Specially Protected Areas and the Genoa Declaration.
4. Request SPA/RAC to assist countries to develop activities for the protection of endangered species (Monk Seal and Marine Turtles) through the Action plans developed or being developed by the SPA Centre and in accordance with the protocol concerning Specially Protected Areas and the Genoa Declaration.
5. Support other actions concerning additional endangered species and the ecosystems important for their protection (e.g. marine plants).
6. Request SPA/RAC to develop and support national activities in the field of selection, creation and management of Specially Protected Areas in accordance with the already approved guidelines.
7. Approve the draft Action Plan for the Conservation of the Mediterranean Marine Turtles as recommended by the Expert Meeting on the Conservation of the Mediterranean Marine Turtles, held in Nicosia (Cyprus), 4 to 6 July 1989 (Annex I to this report)

b) 100 Historic Sites

1. Use the PAP structure and experience for the development of the new activities, in close cooperation with SPA/RAC and the Coordinating Unit.
2. Express appreciation to the authorities in France for the offer of Marseilles to service the network of 100 Mediterranean historic sites.

**E. ENVIRONMENTALLY SOUND MANAGEMENT OF THE MEDITERRANEAN
COASTAL ZONES**

**9. ENVIRONMENTALLY SOUND MANAGEMENT OF THE MEDITERRANEAN
COASTAL ZONE**

- a) Prospective analysis of the relationship between Environment and Development⁽¹⁾
1. As a follow-up to the report on the Mediterranean scenarios of the Blue Plan published in 1989, assist the countries of the region at their request in preparing scenarios at the national, coastal or sectoral level in keeping with the result and methodologies of the Blue Plan. For this purpose the Regional Activity Centre of the Blue Plan, acting as the Mediterranean observatory of the relationship between the environment and economic activities in favour of sustainable development, will adjust the forward-looking methods already worked out in respect of the national level to the level of the coastal regions and to the level of the major sectors (town planning, agriculture, industry, energy or tourism). The Scientific Director and Mediterranean experts associated with the Blue Plan will provide assistance to the countries concerned by means of local visits or technical consultations in the RAC/BP. Special attention will be given to the preparation of the scenarios necessary for the development of PAP pilot projects in the coastal areas.
 2. Encourage the exchange of information and to make provision for training of national experts in the forward-looking and systemic methods of the relationship between environment, development and land use by means of technical workshops and individual training courses.
 3. Bring up to date regularly the demographic, economic and environmental databases of the Blue Plan, to extend them to the level of the Mediterranean coastal regions and the coastal strip and to keep the information at the disposal of the countries. This computerised information will inter alia make it possible to supervise the interaction and analysis of the trends to be followed in keeping with the planning, investment and development activities.
 4. Welcome the offer of the Research Centre of the University of Genoa, and of any other institutions, willing to contribute to the development of the Mediterranean databases, including the geocoded bases necessary for coastal scenarios.

(1) In approving this section, the Joint Meeting of the Scientific and Technical Committee and the Socio-Economic Committee requested that the detailed terms of reference and the related budget requirements of the post-Blue Plan activities should be discussed by the Committee of the Whole during the meeting of the Contracting Parties.

5. Welcome the offer of France to continue to host and to provide intellectual and financial support for the RAC/BP for the continuance of the forward-looking analytical activities of the Blue Plan.
6. Provide the greatest possible publicity for the report on the Blue Plan scenarios, and facilitate its publication in the official languages of the U.N. and possibly in other languages, continue the preparation and dissemination of thematic fascicles with the participation of experts from the various Mediterranean countries.

b) Coastal planning and management

1. Recommend to the Co-ordinating Unit of MAP to speed up, in co-operation with the responsible bodies of the country hosting PAP/RAC, signing of the agreement between the host country and UNEP on their mutual obligations regarding the Centre.
2. Recommend to National Focal Points for PAP, particularly those with whom a direct and continuing co-operation has not yet been developed, to intensify the co-operation by including their consultants in various PAP activities and improving communication with PAP/RAC.

c) Coastal zones pilot projects^{1/}

1. Continue work on the list of four coastal zone MAP pilot projects (Bay of Kastela, Bay of Izmir, Island of Rhodes, Coast of Syria).
2. Assist Mediterranean States to identify and formulate environmental protection and integrated development projects in coastal zones, making use of significant national and international financing: less than ten projects could be studied; attention will be focused on projects that are the most viable from the point of view of the Mediterranean environment and financing organizations;
3. Continue to take action, but to a lesser extent (except in the case of information), with regard to "pilot projects" that have specifically received significant national and international financing;
4. Assist in drawing up, implementing and disseminating model thematic projects likely to be of interest to Mediterranean countries because of their innovations and degree of integration.

^{1/} In approving this section, the Joint Meeting of the Scientific and Technical Committee and the Socio-Economic Committee recommended that for projects under preparation, additional funds should be allocated.

5. Invite UNEP and the other international organisations (e.g. the World Bank) to provide financial support to cooperative and pilot projects.
6. Invite the national authorities concerned and the relevant bilateral and multilateral programmes to support the above four pilot projects as practical demonstration areas for the protection of the Mediterranean.

ANNEX

ACTION PLAN

FOR THE CONSERVATION OF THE MEDITERRANEAN MARINE TURTLES

INTRODUCTION

1. The Parties to the Barcelona Convention included among their priority targets for the period 1985-1995 the protection of Mediterranean marine turtles (Genoa, 9-13 September 1985).
2. The populations of Mediterranean marine turtles are decreasing from year to year owing to the interaction of human activities (fisheries as regards the marine environment, occupation or deterioration of the sandy shores as regards the terrestrial environment). There are signs of general decline of populations of turtles nesting on monitored beaches.
3. Many important aspects of the biology and behaviour of marine turtles are too poorly known to plan a complete management strategy for the conservation of these species, but the actual degradation of the populations is so serious that action can no longer be postponed. Using the available information, it is possible to prepare an Action Plan for the conservation of Mediterranean marine turtles. This Plan will be adjusted if necessary as more information becomes available.
4. Information from various sources is taken into account in this Action Plan. Coordinated programmes for scientific research (population, tagging, biology and physiology), public awareness campaigns, proposals for the management of nesting beaches, etc., can ensure the survival and help the reconstitution of populations dynamics of marine turtles.
5. An effective and durable protection of the Mediterranean Marine Turtles implies management of the Mediterranean as a whole, in co-operation with existing programmes and plans, in particular:
 - at the international level: the Mediterranean Action Plan (MAP) and the Fisheries Management Plans (FAO/GFCM),
 - at the national level: the plans established by the various countries.
6. The most serious threats to the turtles are those occurring:
 - on land, during the nesting period,
 - at sea, catches by fishermen.

Both threats have to be counted in any plan for the conservation of marine turtles and appropriate protection measures proposed.

7. This Action Plan for the conservation of Mediterranean marine turtles outlines objectives, priorities, actions, coordinating structures, a timetable and financial provisions. The different components of the Action Plan are mutually reinforcing and must be taken together to have the best chance of success.

8. The objectives of this Action Plan are:

- a. Protection, conservation and where possible enhancing of the population of marine turtles in the Mediterranean. Special priority should be accorded to *Chelonia mydas* wherever appropriate.
- b. Protection and conservation of the marine turtles habitats including nesting, feeding, and wintering areas.

PRIORITIES

9. The following general priorities are recommended:

- protection and management of nesting and wintering areas,
- banning of exploitation and minimization of accidental catches,
- investigation of new nesting areas,
- more knowledge on behaviour of the species

10. The following priority actions are specified:

a. for the protection and management of the species and their habitats:

- development and implementation of legislation,
- protection and enhancement of nesting areas,
- protection of wintering areas,
- minimization of the impact of fishing on marine turtles;

b. for research:

- survey, concerning nesting beaches that are as yet unknown;
- study of population dynamics and migration patterns in particular through co-ordinated tagging programmes and monitoring of beaches;
- reduction of impacts on marine turtles through accidental capture by fishermen and in particular by long-lining, as well as drift-nets and trawling;

c. for public awareness:

the general public has to be addressed and in particular - depending on specific conditions - the following target groups:

- the local population and tourists in nesting areas
- fishermen.

In order to satisfy the set of priorities:

- emphasis should be given to information media and in particular TV;
- production of Mediterranean information material is considered useful;
- emphasis should be given to national information campaigns.

IMPLEMENTATION MEASURES

A. PROTECTION AND MANAGEMENT

11. With regard to management the following measures are recommended:

A.1. Legislation

12. The Contracting Parties that have not yet extended legal protection to the marine turtles should do so as soon as possible specially having regard to the relevant international conventions.
13. Each country should be encouraged to develop and implement the necessary legislation for the establishment and management of protected areas for marine turtles.

A.2. Protection and management of nesting areas

14. Public access, use of vehicles, use of artificial lights, noise, nautical activities, fisheries activities should be prohibited or at least restricted on and in front of nesting beaches during the nesting season.
15. In the nesting areas of marine turtles, an information campaign for local authorities, local residents and tourists is urgent, in order to enlist their participation in the efforts for the conservation of marine turtles.

A.3. Banning of exploitation and/or minimizing accidental catches

16. So far as the trade in carapace is concerned, instructions should be issued prohibiting the purchase and sale of carapace and giving effect to the relevant ratified international conventions.
17. Campaigns among fishermen should be carried out in order to urge them to release marine turtles caught accidentally, and to participate in the information network on turtles (report sightings of turtles, of tags, participation in the tagging campaign, etc.)
18. Campaign should be carried out for local population in order to ban the consumption and sale of all products derived from marine turtles.
19. Improved fishing trawl nets (TED System) allowing turtles to escape should be tried and used in the areas where the largest catches occur. For this purpose, in appropriate cases and at the request of the government of the country concerned, donor Agencies should consider the possibility of making grants to communities that depend on fishing for their livelihood in order to encourage them to try out fishing methods that would minimize accidental catches of marine turtles.
20. Effective measures need to be identified and applied urgently, in order to minimize the accidental catches by longlines fisheries.

A.4 Establishment of a Mediterranean Network of Marine and Coastal Protected Areas for Marine Turtles

21. All the countries that have nesting areas for marine turtles should make immediate efforts for the stringent protection of these sites.
22. An inventory of all the nesting areas all around the Mediterranean should be prepared urgently, for their inclusion in a network of protected areas for marine turtles. Such an inventory should include the known sites (protected or monitored) and the potential sites and should be regularly reviewed in the light of increased knowledge.
23. A network of marine and coastal protected areas throughout the Mediterranean should be created covering existing areas for reproduction, feeding, migration and wintering of marine turtles, in order to ensure the survival of the species.

A.5. Information and Training

24. A public awareness programme for fishermen, local population and tourists should be developed to help reduce the mortality rates of marine turtles and to promote the reporting of any useful information concerning them.
25. Special documentary information material and activities should be developed for tourists and tourist industries near nesting areas for marine turtles.
26. A widespread campaign for the protection of Mediterranean marine turtles should be carried out in order to sensitize the public and encourage it to support conservation measures.
27. Training programmes should be developed for countries that have no experts with specialized knowledge of turtles, or for managers of specially protected areas including nesting beaches for turtles.

B. RESEARCH

B.1 Scientific Research

28. The development of research and exchange of information should cover all the priority fields for the conservation of marine turtle population and in particular:
 - survey for the nesting beaches
 - population dynamics and migration
 - tagging
 - mortality due to fishing or pollution

29. For some countries, there is little or no information on nesting sites and size of population of marine turtles. These countries should be encouraged to undertake research programmes.

B.2 Data collection and dissemination

30. All Contracting Parties should encourage intensive programmes for gathering data concerning relevant aspects of the biology and ecology of marine turtles.
31. All the information on marine turtles should be studied and evaluated. National authorities are requested to submit an annual report to the Co-ordinating Organization, which will carry out the evaluation at the Mediterranean level. The information should be then disseminated appropriately.

C. CO-ORDINATION STRUCTURE

32. It is necessary to co-ordinate the Mediterranean activities envisaged in the Action Plan for Marine Turtles. It is considered that the Mediterranean Action Plan/Regional Activity Center for Specially Protected Areas is the most appropriate existing mechanism for this co-ordination - in co-operation with other bodies concerned.
33. The major function of the co-ordinating mechanism with regard to marine turtles would be to:
 - collect and evaluate the data at the Mediterranean level,
 - prepare inventories of existing and potential protected areas for marine turtles.
 - contribute to the creation of a Mediterranean network of protected areas for marine turtles,
 - prepare time-table of activities and financing proposals for the Contracting Parties meetings,
 - contribute to the dissemination and exchange of information,
 - assist and/or organize expert meetings on specific topics regarding marine turtles, as well as training courses.
34. Complementary work carried out by other international bodies aiming at the same objectives should be encouraged, ensuring co-ordination and preventing possible overlapping.
35. The status of Mediterranean Marine Turtles and the content of this Action Plan for marine turtles should be reviewed whenever necessary.