



**United Nations
Environment
Programme**



UNEP(DEC)/MED WG.232/Inf 6
5 June 2003

ENGLISH



MEDITERRANEAN ACTION PLAN

Sixth Meeting of National Focal Points for SPAs

Marseilles, 17-20 June 2003

**THE CONSERVATION OF THE MEDITERRANEAN MONK SEAL:
PROPOSAL OF PRIORITY ACTIVITIES TO BE CARRIED OUT IN
THE MEDITERRANEAN SEA**

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Mediterranean Action Plan
Regional Activity Centre for Specially Protected Areas (RAC/SPA)
Boulevard de l'Environnement
B.P.337 –1080 Tunis CEDEX
E-mail : car-asp@rac-spa.org.tn

The original version (English) of this document has been revised and edited at the Regional Activity Centre for Specially Protected Areas (RAC/SPA) by:

Daniel CEBRIAN MENCHERO
Marine Biology Expert of RAC/SPA
&
Giovanni TORCHIA
Marine Biology Expert of RAC/SPA

The consultants participating in the elaboration of this proposal were: Abdellatif BAYED, Ali Cemal GUCU, Giulia MO, Manel GAZO, and Panos DENDRINOS,

FOREWORD

During the last Meeting of the National Focal Points for Specially Protected Areas (Valencia, 23-26 April 2001), while stressing the importance of field surveys and inventories of habitats favourable for Mediterranean monk seal, RAC/SPA pointed out to its National Focal Points that the actions undertaken so far in the Mediterranean for the conservation of the monk seal are not sufficient to ensure the species' survival, and that it has not been possible to halt the decline of this species.

Following a discussion on this issue, the Meeting requested RAC/SPA to organise a group of experts in charge of identifying and planning out concrete actions to protect and contrast the Mediterranean monk seal's current decline.

The group has been set up and it includes specialists from different Mediterranean countries. They have been invited to prepare a short and concrete document concerning the actions to be undertaken and to attend a meeting in Lathakia, Syria, on 29-30 September 2002. The Meeting was attended by the 5 experts, representatives of the host country and of RAC/SPA. The present document, which lists a series of concrete actions (including calendar of implementation and budget), constitutes the main output of this Meeting.

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THE CONSERVATION OF THE MEDITERRANEAN MONK SEAL: PROPOSAL OF PRIORITY ACTIVITIES TO BE CARRIED OUT IN THE MEDITERRANEAN SEA

1. INTRODUCTION

The decline of the Mediterranean monk seal throughout most of the Mediterranean riparian states appears in the different literature of the last two centuries. Nevertheless the sightings of newborn pups, recorded in many areas of Greece and Turkey, the survival of this species is seriously endangered.

Despite international action plans formulated since the 1970s only very few conservation initiatives have been enacted by Mediterranean countries to attempt to halt the decline of the species.

The reason for this decline are several (Negative interaction with fishing activities, Degradation and loss of habitat, disturbance, ...). Moreover the biology and ecology of the species are insufficiently known, in some areas there is an absolute lack of data, be it historical or recent, due to the overall absence of information on the countries' marine biological diversity scenario.

The situation is quite different in Greece and Turkey where monk seal presence has been ascertained during the last several decades and in which some marine protected areas have been purposefully established (i.e. National Park of Sporades, Foca Sea and Seal Conservation Area). The existence of extensive quantities of islands and archipelagos in these two countries provides a large amount of isolated coastlines with adequate environmental habitat for monk seal groups to survive.

While it is undoubtedly true that it is impossible to reverse the effects of the excessive anthropization of the coastline of already existing human settlements, it is true that conservation measures may still be enacted along the fronts of research and validation of monk seal existence along certain parts of the Mediterranean coast followed by enactment of protection measures both in terms of habitat protection as well as modifications to human behaviour that would otherwise appear aversive to monk seal survival.

2. ASSESSMENT OF THE SITUATION

Despite information on births occurring along the Greek and Turkish coastlines, the species' overall status is seriously endangered. A large amount of updated information on the species' distribution is lacking especially for countries of the southern shores of the Mediterranean where the hypothesized situation is that of a highly fragmented distribution and most likely composed of small groups. These two factors could have strong implications with regards to genetic inbreeding and isolation amongst and between subgroups. The table listed below summarizes the knowledge of the authors from data collected during the last ten years.

Country	General approximate number	Areas	Minimum estimate of number of individuals ¹	Sightings information from the 90's	Estimation of the availability of adequate habitat (coastal areas) ²	Breeding activities
Albania	Unknown	-	Unknown	No data	Medium	-
Algeria	About 10 (between western Algeria and Morocco)	The west area	Unknown	No data	Medium to high	-
		The east area	Unknown	No data		
Cyprus	4-5	-	Unknown	Single animal sightings	Medium to High	-
Croatia	Unknown	Southern coasts and Archipelagos	Unknown	Single animal sightings (Pelagosa island (1993,1994, 1998?), Vis archipelago (1990,1992,1996), Korcula island (1995), Brijuni archipelago (1996), Miljet (1990), Kanavoske Stijene (1990), Peljesac (1992))	Medium	-

¹ Intended as minimum number of individuals that can be distinguished one from the other (i.e. through photoidentification etc.)

² The definition of the availability mainly takes into account factors such as geomorphology of the region and the amount of human encroachment on the coasts. Ranking is given as: low, medium and high and is to be considered an approximated estimation.

Egypt	Unknown	-	Unknown	No data	Limited (west coast)	-
Greece	200 – 250 ind. (Minimum estimated 121 ind.)	The Northern Sporades islands (NMPANS)	55	Several sightings (approx. 200/ year) in different areas throughout the country	High	Yes 8-9 pups / year ³
		The islands of Kimolos and Polyaigos	30			Yes 6-7 pups/ year ⁸
		The northern Karpathos and Saria islands	15			Yes 2-3/ year ⁸
		Kefallonia-Ithaca-Lefkada islands	12			Yes 1-4pups/ year ⁴
		The island of Zakynthos	9			Yes 2pups/ year ⁹
Italy	Unknown	Sardinia, southwestern Sicily and southeastern Italy	Unknown	1-2 single animal sightings / year in Sardinia; single animal sightings Pantelleria (1996-1998) and southwestern and southeastern coast of Italy (2000, 2002, 2003)	Low-Medium	-
Lebanon	Unknown	Palm Island Reserve	Unknown	1 ind. Palm island Reserve(1997)	Medium (Palm Island)	-

³ From counts during the last five years.

⁴ Data from studies realised until 1999.

Libya	Unknown	The coast of Cyrenaica	Unknown	Single animal sightings (Benghazi (1992-1993;2000-2002), Tolmeitha-Soussa (1992-1993,1995-1996,1999, 2001, Derna-Ras Tin coast (2001), Barda Island (1994,1998-1999, 2002), Tobrouk coast (1996-1998)	Medium to high	-
Malta		Unknown	Unknown	1 single animal sighting 12 nm to the northwest of Malta (1998)	Low	
Morocco	< 10	From Al Hoceima to Cap des Trois Fourches	Unknown	Single animal sightings (Mestassa, Ile de Topos,Pointe Boussequour, Cape of Trois fourches))	Medium	-
Spain	Unknown	Chafarinas islands (Northern Morocco)	Unknown	Single animal sightings (1993-1995)	Medium	-
Syria	Unknown	Latakia and Tartos	Unknown	Single animal sightings Port of Lattakia (1994-1995); 2 individ. Observed south of Lattakia ((1995)	Medium (northern coast)	-
Tunisia	Unknown	Archipelago of La Galite, Archipelago of Zembra and Zembretta, northern coastline	Unknown	No Data	Medium	-

Turkey	About 100 in all the country	Mirssin	24	Several sightings in different areas of the country	High	Yes 1-2pups/ year
		Fourtia	10			Yes 1pup/ year
		Gochia	2			-
Slovenia	?					
Israel	?					

3. THREATS

The decline of the Mediterranean monk seal throughout most of the Mediterranean riparian states appears in the different literature of the last two centuries where it is outlined how intense and prolonged killing of the species has played a role in the overall diminishment of monk seal groups. However, it is the conjunction of this threat together with the effects deriving from the industrialisation of the last century, which have culminated in the disappearance of the species from many Mediterranean (especially northern countries) coastlines.

1. Threats - 1: Negative interaction with fishing activities:
 - Dwindling food resources for seals caused by overexploitation of halieutic stocks.
 - Accidental capture of seals in fishing nets and gear.
 - Fishing activity in areas and sectors near the caves.
 - Damage to or destruction of fishing nets by the seals.
 - Cheating use of non-regulation fishing gear.
 - Use of dynamite (direct destruction of the seals, mass deaths of fish in relation to quantity, size and target species).
 - Practice of underwater fishing with aqualungs.
 - Direct elimination of seals by fishermen (gun, spear gun) or underwater divers (gun).
 - Illegal fishing.
2. Threats - 2: Degradation and loss of habitat (reduction in the number of suitable caves):
 - Modification of the appearance of the coast.
 - Coastal development by urban, port, tourist and industrial construction.
 - Destruction of the caves.
 - Proximity of urban and tourist areas.
 - Degradation of the habitat by tourists visiting the caves.
3. Threats - 3: Disturbance:
 - Urban, industrial and tourist development.
 - Diving and underwater fishing.
 - Tourist activities in or near caves and areas frequented by the seals (excursions to caves, diving for sport, bathing, boating...).
 - Human activities near caves and areas frequented by the seals (sailing, sea traffic, fishing, human presence on the heights above the caves and areas frequented by the seals).
 - Harassment of seals encountered at sea or near the coast.
4. Threats - 4: Pollution:
 - Industrial and urban discharge in regions next to those sectors occupied and frequented by the seals.
 - Contamination of the seals by heavy metals, PCBs and organo-chlorines.

ACTIONS TO BE UNDERTAKEN

Mediterranean monk seal breeding groups inhabiting the Greek and Turkish coastlines are presently the strongest foothold that the species exhibits in the Mediterranean basin and as such deserve strong conservation programmes. Attempts to conserve and recover the species need however to be enacted throughout the basin: in areas where the presence is already ascertained, in areas proximate to the former locations where individuals may migrate and disperse and in geographical areas where the species is hypothesized to exist but where research and conservation initiatives have had difficulty in finding consistent long-term enactment. **A region-wide approach** is necessary due to the possibility of individuals moving beyond national territorial waters both in the case of animals dispersing from their areas of birth to lesser densely populated coastlines as well as in the case of marginal components coming into contact with (and therefore being able to reproductively contribute into) the so called "more numerous existing colonies".

In view of the low population estimate for the existing population the overall maintenance of the species' genetic diversity, and therefore of biologically fit individuals, is a matter of great concern and all attempts should be made at conserving and restoring all remaining monk seal groups, regardless of size and location.

Actions that should be undertaken as priority are suggested below.

Moreover an important element for the achievement of the conservation of Monk seal is a concrete international collaboration, in order to facilitate exchange of information and experience between researchers, managers, decision-makers and experts as well as harmonisation of methods and techniques and data collection

Actions come under three headings: (1) Capacity building, awareness and information, and (2) Conservation and (3) improving scientific knowledge of the status of the species and the habitat availability.

HEADING 1: CAPACITY BUILDING, AWARENESS AND INFORMATION

The present section is aimed at the enactment of actions regarding capacity building and a greater awareness at the community level towards issues concerning monk seal conservation. Through the enactment of such actions countries will be able to establish a custom-fit programme analogous to the National Information Network set up and operated for the species in Greece, which has shown that it can help gather much data on the distribution of the species and at the same time inform local people and local authorities and make them aware of this endangered animal.

CAPACITY BUILDING

Action 1: Identification, capacity building and training of national experts

Justification:

Apart from areas in which monk seal nuclei are known to exist and are studied (Greece and Turkey) there are various geographical areas where the species is hypothesized to exist but where research and conservation initiatives have had difficulty in finding consistent long-term enactment (see introductory document). The latter situation is partly accentuated by an overall lack of national technical-scientific personnel capable of operating on a sound and long-term basis in the fields of research, education, awareness building and protection of the Mediterranean monk seal. This is somewhat evident in the recent national reports produced by RAC/SPA, which reports the implementation status of the Mediterranean Action Plan for the Conservation of the Mediterranean monk seal, formulated by UNEP MAP in 1987, in which the species overall conservation status and knowledge in various given countries appears often/repetitively unknown and specific conservation actions and monitoring of the species abundance, habitat use, distribution and survivorship are missing. Such an aspect must undoubtedly be linked due to the lack of consistent funding for this species. However, it is probably also linked to the difficulty of obtaining sound and continuative national backup of specific conservation initiatives and the difficulty in identifying trained technical-scientific personnel capable of undertaking these specific conservation activities for the species (for the sake and even on behalf of the relevant state's benefit in terms of protected species conservation) on a long-term basis. On the other hand, long-term conservation actions are being implemented with concrete results in other countries with sizeable monk seal breeding populations (e.g. Greece, Turkey and Portugal, Madeira), and valuable experience has been gained on the conservation of the species. It is very important that this valuable knowledge be passed on to experts in countries where, due to the minimal and reduced monk seal presence and existence there is limited conservation experience on the species (and its parameters).

Description:

Countries characterised by minimal or unverified numbers of monk seals and adequate habitat availability (see preparatory document) should identify a group of 2-4 technical-scientific personnel able to carry out and coordinate future conservation activities related to: protection, awareness and education, research on the species biology and liaise comfortably with National Focal Points and other international. The choice of the national experts should be based on: personal capacity and preparation to undertake all of the

above conservation activities, possibility to be able to conduct such actions for the relevant state on a 5-more year-basis and able to liaise directly with the state's National Focal Point and other international experts in this sector (i.e. key persons from the state, NGOs, universities). The group of designated national experts could thus represent a significant portion of the participants assigned to coordinate and carry out the various activities of the present document in the national implementation process of the present priority action plan.

Once designated, the national experts would then follow a 10/15-day field seminar to be held at a field site where a sizeable monk seal breeding population exists and conservation programmes are under way (e.g. Greece - National Marine Park of Alonnisos Northern Sporades - or Turkey). During the course of the seminar, the participants would not only be able to gain direct hands-on experience on the species but also be exposed to the conservation experience of local researchers working on the species. The seminar would in addition, cover aspects such as: basic phocid biology, ecology and physiology and available scientific information on monk seal biology, ecology and physiology, update on the conservation status of the species throughout the basin, explanation of different methodological conservation approaches and applied research methods on the Mediterranean monk seal as well as other endangered phocid species (i.e. photoidentification etc.), basic notions on how conservation programmes of endangered and protected species may lead to recovery of the species, methods of data recording (i.e. use of statistical analysis, use of GIS tools) and basic technical training on the functioning and maintenance of technologies applied in monk seal research (i.e. functioning of camera-traps, as well as mean different issues of species conservation (field research, collection of information, awareness campaigns etc.), marine protected area management and zonation, socioeconomics of marine protected area schemes, etc.. Participation in the seminar would thus allow experts to: strengthen their capacity to conduct conservation activities in their own countries, enhance network amongst mediterranean monk seal conservationists while also allowing them to tap into the vast international knowledge of conservationists working on other phocid conservation issues abroad.

Results anticipated:

- Indirect positive effect on the survival of the species.
- Creating a group of national experts who, using international experience, will design and carry out conservation actions for the species within their countries.

Target:

Scientists, researchers, and managers who are engaged in seal conservation and wish to carry out concerted actions to protect the monk seal in their respective countries.

Proposed countries involved:

Morocco, Algeria, Tunisia, Libya, Albania, Croatia, Syria.

Responsibility and execution:

- RAC/SPA: as international coordinating unit (flow of information, advise, coordination)
- National and international scientists involved in monk seal conservation programmes
- NGOs and national experts: implementing the action.

Approximate cost:

54,000 US \$ for 7 countries (for a 10-day field training course for 4 persons/country, travelling expenses included for each country).

Implementation calendar:

In 2004 (possibly spring/summer, but the best period for field training is autumn).

AWARENESS AND INFORMATION

Conservation awareness amongst local residents and stakeholders is a pivotal point for ensuring effective protected species management and recovery. In areas where monk seal presence is low or unverified, and where marine protected areas for the species conservation are missing, awareness initiatives need to be disseminated in a diffused way within the wider context of local communities both to begin basic measures of sensitisation as well as to set up an initial information network of monk seal observations. To this effect it is useful to direct such activities to: the wider local community, the specific fishermen community, authority officers, the scholastic institutions present throughout a given territory, eventual tourist or visitors of the area.

Action 2: Increasing conservation awareness at a local level

Justification:

It is useful to make local people feel proud of having such a species in their respective regions, and of becoming involved in actions to protect it. Special workshops provide an opportunity for raising the local people's awareness and having them participate in monitoring the seals and human activities in their region. The monk seal is known to be extremely sensitive to human disturbance and as such special workshops aimed at the wide-context of the local communities will enable to involve them in identifying those human activities, which seem to disturb the seals or cause conflict with them.

The main threats are also related to deliberate killing and fishing activities such as incidental catch (trammel and gill-nets) and use of forbidden fishing gear and techniques (i.e. fishing with dynamite). In the Northern Sporades National Park (Greece), the effort to educate the public has resulted in an increase of tolerance in fishermen, who are starting to see seals as good ecological markers for fishing grounds rather than rivals for the same resources. Although the socio-economic setting of local fisheries in many Mediterranean coastal states is very different from that of the Greek Aegean, efforts to educate the fishermen community on matters pertaining to the rarity of the species and its symbolic value in terms of ecosystem health are aspects worth pursuing in all socio-economic contexts. Using participatory approach techniques, scenarios are devised with them, and a consensus can be obtained to prevent fishing that is against the rules (fishing with dynamite) and also to look into the possibility of a change in fishing activity. The action is also intended to make fishermen strongly aware of both monk seal and marine environment protection. In addition to these meetings, documents (in the appropriate languages) will be handed out to fishermen.

Moreover, the presently outlined workshops will also lay the basis for the establishment of a regional information network so that monk seal sightings can be recorded and assessed and so that eventual possible suitable habitat for the species can be preliminarily identified.

Description:

1. A 1 to ½ day information and awareness meeting aimed at local communities (families, general sea-users, various stakeholders). Means and modes of communication: The means of communication and information used are based on participatory approach techniques where people are involved at all times during the workshops; particular attention will be paid to the interaction between the mediator and the people who are on the receiving end of the information, constantly checking that the message this

action aims at conveying is being understood. Professional mediators should be present. Materials to be used: pictures, posters, tee shirts, etc.

2. A 1 to ½ day information and awareness workshop specifically aimed at the fishing community, identifying alternatives and actions to be implemented to reduce or halt conflict with the monk seals. This action also anticipates organising awareness campaigns, conferences and inquiries and opinion polls in the fishing cooperatives with two main topics: (1) the status of the protection of monk seals and (2) the importance and value of the species in the Mediterranean environment. This action is planned on a two-year basis because it is necessary that the various conferences and visits to fishing cooperatives be repeated every year since the feed-back received by interviewers and lecturers will be useful for checking understanding of the issue and addressing future proposals.

Expected Results (objective set by the action):

- Developing greater civic sensitivity among young people concerning the protection of the marine environment.
- Developing greater awareness in the fishing community concerning the protection of the marine environment.
- Reducing or even halting fishermen/seal conflict.

Target:

- Local people in the places where the presence of monk seal has been confirmed, or where it is hypothesized to exist.
- Local fishermen, and fishermen in middle-sized and big production units that operate in the areas frequented by the monk seal.

Proposed areas involved:

- The largest coastal settlements from Al Hoceima to the Cape of Trois Fourches (Morocco).
- The largest coastal settlements in the western and eastern parts of the Algerian coast (Algeria).
- The largest coastal settlements on the north coast of Tunisia between Tabarka and Cap Bon (Tunisia).
- The Cyrenaica coast, in the Benghazi, Tolmeitha, Derna-Ras Tin coast, Boumba gulf, Tobrouk and Bardii districts (Libya).
- Palm Island (Lebanon).
- The largest coastal settlements in the Tartous and Lattakia coasts (Syria).
- The Karaburum (Albania).
- The Vis Archipelago and southwards until Peljesac and Korcula islands, Lastovo and Mliet (Croatia).

Responsibility and execution:

- RAC/SPA: as international coordinating unit (flow of information, coordination, production of educational material that is the same throughout the basin but written in different languages : english, french, arabic, albanian, croatian).
- RAC/SPA National Focal Points (national coordination).
- National experts on the monk seal (as coordinators, liaison bridging and eventual actors of the workshops depending on circumstances and national scenarios).

- Collaboration of local authorities (municipalities, rural authorities).
- Collaboration of the relevant national authorities, particularly the Maritime Fishing Boards, and in association with fishermen's professional groups and cooperatives.
- Local NGOs with national expertise in conservation and fisheries aspects.
- National and international scientists involved in monk seal conservation programmes
- National 'moderators'.
- The Ministry of Education of the relevant countries: starting training and agreeing to include protection in school programmes and eventually schoolbooks.
- Local or district offices of the national Ministry of Education.

Approximate cost:

General public meetings : 70,000 US \$ over two years for all the proposed areas, including personnel expenses and environmental educational material (posters, postcards).

Fishermen workshops : 80,000 US \$ over two years for all the proposed areas, including personnel expenses and environmental education material (brochures, posters).

Implementation calendar:

This action will coincide with the period when fishermen use trammel and gill-nets. It is important that it be done at least twice, in the same places and at the same season, in 2004 and 2005.

Action 3: Creating awareness amongst visitors and tourists

Justification:

During the summer season in particular, many coastal regions are visited by holidaymakers. It is useful for the protection of the seals to make this public more aware by using suitable tools. Thus, protection of the monk seal can affect a wider public and be extended to other parts of the respective countries.

Description:

Tourists visiting coastal areas inhabited by monk seals are made aware of monk seal conservation status and protection through specifically information points set up in public places (i.e. specially designed billboards in car parks and camp sites), which request the public to respect the marine environment and protect seals. The information conveyed should include aspects pertaining to the species' biology and conservation but care should be taken to not indicate to the visitors where the seals are, lest this lead to a result exactly opposite to that which is intended. Where the areas are characterised by the presence of information kiosks and tourist information booths, leaflets will be available delineating a human code of conduct in case of monk seal encounter and basic information on the species biology and conservation status. The billboard and leaflets will also allow indicate who to contact in case of monk seal sighting and what type of information to relay back to the national contact person/institute/organisation. In such a way the information structures will participate in enhancing a system of national network for the relaying of sighting information of monk seals. Preparation of a unique layout format and graphics for the billboards, leaflets and postcards and the possibility to use these "universal" graphic layouts (as well as the absence of copyright problems and costs) in translating the text to the appropriate language of each country involved would allow to reduce the overall cost of the production of the material in the overall.

Expected Results:

- Indirect positive effect for the survival of the species
- Making the wider public, who come from other parts of the interior or the coast where there are no seals, aware. There is a marked impact on this target group, particularly on young people, producing a change of attitude.

Target:

The general public and national or foreign tourists.

Proposed areas involved:

- From Al Hoceima to the Cape of Trois Fourches (Morocco).
- The western and eastern coasts (Algeria).
- Northern Tunisia (i.e. Tabarka).
- Cyrenaican Libya.
- Northern Syria.
- Croatia.
- Islands of Sardinia and Pantelleria (Italy).

Responsibility and execution:

RAC/SPA: as coordinating unit (flow of information, coordination).

RAC/SPA National Focal Points (national coordination).

Regional, national and international NGOs: implementing the action.

Approximate cost:

10,000 US \$ per country.

Implementation calendar:

8 months for graphic layout and ideation.

4-6 months for construction and printing of material.

Installation of boards and distribution of material during the 2004 and 2005 school holidays.

Action 4: Training workshops for teachers in the educational institutions and preparation of basic educational scholastic material and of instruction modules

Justification:

There are few - if any - marine environmental education courses in the school programmes of most Mediterranean countries. The aim of this action is to introduce into the environmental education pedagogical courses tools that are specific to biology and ecology and the role of the monk seal in the ecosystem. Particular attention will be paid to the historical and heritage value of the monk seal. Special material in the form of booklets will be distributed, and will help the ideas acquired in class take root, and encourage children to participate in the conservation of the monk seal in their respective regions.

Description:

This programme aims at two dovetailing actions: (1) introducing school teachers to the basic tools for environmental education and nature conservation, and (2) with these teachers, elaborating pedagogical tools about environmental education generally, and the monk seal in particular. Protection and conservation of the seals must be set within the wider context of environment protection and nature conservation.

This action has the advantage of being maintained over time, uses the local human resources in each region and each of the concerned countries, and only requires reasonable financial backing. In areas where regional training centres do not exist, workshops would have to be conducted within subregional district offices of environmental agencies or municipal/province facilities.

The programme could be supported by the distribution of a booklet with drawings and sketches depicting main aspects of the species biology and conservation and basic exercises and tasks requiring student involvement in collecting past and present information on the species' presence from family members and the local community. In such a way the student's investigative activities are geared to learning the concepts by collecting and extrapolating local information on the species' presence and at the same time acts as local data collector on the species' biology.

Results anticipated:

- Indirect positive effect on the survival of the species.
- This type of action touches children and youngsters at school. Protection of the monk seal will be learned while young and set within the overall context of nature protection and conservation in each region.

Target:

Primary and secondary school teachers in the respective regions of Morocco, Algeria, Libya, Tunisia and Syria.

Proposed areas involved:

- From Al Hoceima to the Cape of Trois Fourches (Morocco).
- The western and eastern areas of the Algerian coast (Algeria).
- The north coast of Tunisia between Tabarka and Cap Bon (Tunisia).
- The Cyrenaica coast in the Benghazi, Tolmeta, Ras Tin, Boumba, Tobrouk and Bardii zones (Libya).
- The Lattakia coast (Syria).
- The Karaburum (Albania).
- The Vis Archipelago and southwards until Peljesac and Korcula islands, Lastovo and Mliet (Croatia).

Responsibility and execution:

RAC/SPA: as international coordinating unit (flow of information, coordination).

The RAC/SPA National Focal Points: information, facilities.

Local NGOs and national expertise: implementing the action.

Environmental education and training centres: training being provided within an appropriate context.

Approximate cost:

5,000 US \$ per workshop for 2004 and 2005; total = 70,000 US \$ for all the proposed areas.

Preparation of the materials and tools: 3,000 US \$ x 7 soit 21,000 US \$ for the proposed areas.

Implementation calendar:

5 days to be provided for in 2004 and 2005 in each country.

Action 5: A Mediterranean-scale public awareness campaign in the media

Justification:

Making the public more aware (tourists and all other users of the sea) as well as decision-makers (directly through the campaign and indirectly through the pressure of public opinion) is basic to the success of any conservation action and to attracting funding for the study, monitoring and conservation of the monk seal.

Description:

A Mediterranean-scale awareness campaign could be designed and implemented by providing each state with a standard "universal" set of public-awareness material to be used in each country. The campaign could include the production of a TV commercial/brief documentary /press release (specially designed advertisements) for newspapers and magazines (in english, french and arabic but which could subsequently be translated into various Mediterranean languages by each country involved). The message should cover the following issues:

- The importance of the Mediterranean marine environment.
- The known facts on the Mediterranean monk seal.
- The importance of conservation of the monk seal (the only pinnipeds in the Mediterranean) as an important part of the marine environment and a symbol for its conservation.
- Code of conduct in case of monk seal sightings.
- Collaboration between the Mediterranean countries on the above issue.

Every country could have access to this material free of charge and could then devise its own way of promoting the material with appropriate strategies and campaigns.

Result anticipated:

- Indirect positive effect on the survival of the species.
- Developing greater public awareness and awareness among decision-makers concerning the protection of the marine environment
- Attracting financial support for actions for the conservation of the monk seal.

Targets:

The public and decision-makers.

Proposed areas involved:

All the Mediterranean countries.

Responsibility and execution:

- UNEP- RAC/SPA: as international coordinating unit with the contribution of national experts.
(the material should carry the authorship of the coordinating unit/s and sponsors).

Approximate cost:

Provisional budget: 50,000 US \$.

Implementation calendar:

The action could start in the second half of 2004 with press material for newspapers and magazines and continue into 2005 with the production of a TV publicity advertisement and brief documentary .

HEADING 2: CONSERVATION

The present section regards protection schemes aimed at ensuring the successful reproduction and weaning and the basic biological needs for the species and therefore leading to increased survival of monk seal nuclei throughout the basin. Such activities have substantial application differences if the activities are addressed to already studied monk seal groups composed of substantial numbers of monk seal individuals or if they are addressed to those geographic areas where smaller numbers of individuals are hypothesized to exist. The present section is therefore subdivided between:

- a) activities addressed to **high monk seal-density** areas, intended as the Greek and Turkish coasts and islands and
- b) activities addressed to **low monk seal-density** areas involving those Mediterranean countries where monk seals are hypothesized to exist (even though in reduced numbers) but where data collection and conservation schemes for the species are currently missing ⁵.

A. HIGH DENSITY AREAS (TURKEY, GREECE)

Action 1: Identification of currently non-protected breeding sites and formulation of their protection measures

Justification:

Disturbance and harassment to breeding sites are important factors in the decline of monk seal populations. Managing and controlling land and sea access to the critical areas inhabited by seals where breeding occurs are crucial actions and their importances in monk seal conservation have been widely stressed at various international meetings.

Targets:

Identification and zonation plans for marine protected areas (identified as suitable for monk seal breeding purposes and monk seal presence) capable of guaranteeing: successful reproduction, the safeguard of the species' biological requirements, and increased population size and overall species health.

Description:

Identification of a network of protected areas for the conservation of the monk seal. The process represents the first step towards the legal establishment and management of future MPAs focused on monk seal conservation. A zonation plan should be elaborated for each of these areas, which includes the following protection measures:

- Establishment of a **marine core zone** around breeding sites.

This area should include a no-take zone whose offshore limit should be based amongst all on the diving range of newborn to 1 year old seals so as to significantly reduce the risk of their entanglement (see Gucu's contribution in the preparatory document). Based on the

⁵ For low monk seal density areas please refer to the table in the "Assesment of the situation" which refers to countries with the following characteristics: unknown monk seal populations, recent single animal sightings and medium-high estimated habitat availability.

available experience acquired in other protected areas, a 40-meter isobath should be sufficient to draw the seaward boundary of the core zone and this should not be less than 200 meters from the coast. Proximity to touristic settlements should also be considered and in the case of highly touristic areas the limit should be pushed further offshore. Moreover, the geographical features of the coast such as capes and bays having similar and continuous coastal typologies should not be fragmented. The extent of the coastal stretch should include the daily travel range of a pup. This aspect requires further research on pup behavior, but until further data is available and based on a precautionary approach, a 1 km length may be the initial minimum range to consider in terms of the the coastal extent (to the right and to the left) of the core zone around breeding areas.

The following activities should be banned in the core zone of the breeding sites:

- all kinds of fisheries including sports and commercial fishing.
- entering monk seal caves by any means by the general public.
- diving (skin and SCUBA) for recreational and commercial purposes.
- vessel traffic and human activities.
- fish farming (existing fish farms should be obliged to install outer protection nets).
- No use of any acoustic harassment device around nets or fish farms.

- Establishment of a **terrestrial core zone** around breeding sites.

The spread of all types of construction should be prohibited within 500 meters from the coast of the protected area, in vertical projection. The lateral extent of the on-land protection should be equal to the stretch of the core zone in the sea and should not be less than 1 km.

Areas involved:

Turkey

The Aegean and Mediterranean coast of Turkey and in particular, those sites declared as most important monk seal habitats by the Turkish national Monk Seal Committee (Gokceada; Foca – Yeni Foca; Karaburun-Mordogan, Cesme-Alacati-Sigacik; Kudur Peninsula-Bodrum between Guvercinlik and Bodrum, Datca-Bozburun, Gocek-Fethiye, Olimpos National Park-Kemer, Gazipasa-Tasucu).

Greece

Apart from the well-identified seal breeding areas found in already established protected areas, other data show that more breeding sites exists within the 15000km of the coastline of the country (e.g. Zakyntos and Kefallonia-Ithaca islands in the Ionian, as well as in different areas of the Aegean). It is important that the importance of these sites be evaluated, with the use of available and updated data, and appropriate conservation measures be designed and proposed to the State.

Responsibility:

Selection of the sites to be declared as protected breeding habitat should be made by the national authorities in coordination with the relevant NGOs acting in this domain. The legal means by which each area will be protected will vary according to area and country and the available legal means. The authorities of each country are listed below.

Turkey

National Monk Seal Committee (NMSC) and the Technical Sub Committee under NMSC
Ministry of Environment.

Greece

Ministry of Environment and experienced NGOs.

Stakeholders:

Local communities.

Fishermen – Divers.

Tourists and tourism companies.

Budget:

For hypothesized breeding sites:	Greece	Turkey
Organisation of meetings for site selection, fieldwork and data collection in order to sustain the zonation plan of the MPAs	65 000 (for one and a half year)	25 000
Reporting results and lobbying activities.	5 000	5 000

Implementation calendar:

Organising meetings and data collection: 6 months to 1 year.

Reporting the results: 1 month.

Lobbying: 12 months.

Expected results:

Protected breeding areas capable of guaranteeing long-term survival of species and successful breeding activities.

Action 2: Ensurance of protection and management measures for already protected breeding sites

Justification:

Managing and controlling land and sea access to the critical areas inhabited by seals where breeding occurs are crucial actions and their importance in monk seal conservation have been widely stressed at various international meetings. Conservation programmes present in already established protected areas need to be maintained so as to guarantee longterm monk seal conservation.

Targets:

Maintenance of protection measures in already established protected areas.

Description:

Two important monk seal breeding sites have been declared in Greece, as protected areas:

1) The National Marine Park of Alonissos, Northern Sporades, in the northwestern Aegean, which is the most extensive (measures aprox. 2200 km²) Mediterranean marine protected area in which the highest number of monk seal births occur per year.

2) The N. Karpathos and Saria Protected area, in the southeastern Aegean.

In addition a third area, Kimolos and Polyaigos island complex, has also been identified as a very important breeding site for the species. In this area, a proper zonation has been designed and proposed and it is presently under public discussion within the legal procedure for the establishment of the protected area.

The protection measures enforced or proposed in the above areas are targeted towards the protection of the monk seal breeding habitat, the conservation of the fish stocks as well as the overall protection of the marine and coastal environment. In all three areas long-term monitoring schemes have been established and patrolling systems have been designed and are operating (note: in the Kimolos area these are in a preliminary pilot phase so as to be fully effective by the establishment of the protected area). Additionally, information centers are operating for public awareness and education. The continuation of these vital management activities should be ensured.

Areas involved:

The National Marine Park of Alonissos, Northern Sporades,
The N. Karpathos and Saria Protected area, in the southeastern Aegean.
The Kimolos and Polyaigos island complex.

Responsibility:

Relevant Management Bodies under the coordination of the Ministry of the Environment assisted by the National NATURA 2000 Committee (recently established). The Management Bodies are composed of representatives of the local communities as well as NGO's experienced on the subject. The national NATURA 2000 Committee is composed of representatives of other relevant Ministries, experienced NGOs and individual scientists from different universities.

Stakeholders:

Management bodies of protected areas.

Budget:

1,200,000 US \$.

Implementation calendar:

To be decided.

Expected results:

Long term protection of seals inhabiting already protected areas.

Action 3: Establishing and managing fisheries reserves in areas adjacent to breeding sites

Justification:

The overexploitation of fish stocks is amongst one of the hypothesized factors affecting monk seal survival both because it implies a reduced prey availability as well as a factor leading to increased animosity of local artisanal fisheries towards the monk seal as the animal is seen as a competitor.

Targets:

Evaluate appropriate conservation measures. Improve prey availability for monk seal groups

Reduce conflicts between artisanal and large-scale fisheries and monk seals

Description:

Areas should be identified in which large-scale fisheries such as trawling and purse seining as well as non-selective fishing gears such as fish traps, beach seines and spear fishing should be banned/controlled so as to guarantee long-term sustainable fisheries. The establishment of these measures should be managed according to scientific studies on fish stock size, composition etc. and its regular annual monitoring so as to guarantee recovery of local fish stocks. The size and location of these areas should be situated anywhere between different marine core zones. In addition in already existing marine protected areas, which include fish-stock conservation zones, (like the National Marine Park of Alonissos, N. Sporades) the effectiveness of the conservation measures on the fish-stocks should be evaluated through appropriate studies.

Areas involved:

See action above.

Responsibility:

Turkey

NGO experienced in marine conservation under the coordination of Ministry of Environment and Ministry of Agriculture (because of management of fishing), National research institutes involved in fisheries research.

Greece

Ministry of Environment, Ministry of Fisheries and Agriculture, Protected Areas' Management Bodies, NGO's experienced in marine conservation and National research institutes involved in fisheries research.

Stakeholders:

Large-scale fisheries owners.

Artisanal fisheries and local communities.

Fisheries organisations.

General public.

Budget:

Activity	Financial Figure	
	Greece	Turkey
Field work Research + Data Collection (For MPA management plan)	250 000	250 000
Analysing fisheries around the MPA and preparing/evaluating regulations	25 000	25 000

Implementation calendar:

Research: 1 year.

Analysing data: 3 months.

Lobbying decision-makers: 3 months.

Expected results:

Increased food source for animals, spillover benefits for artisanal fisheries (therefore decreasing the conflict between seals and man). Evaluation of the already existing MPA's management plans with regards to fisheries.

Action 4: Management, implementation of regulations, and patrolling of protected areas

Justification:

A careful evaluation of nature conservation attempts conducted over the last decade indicates an increasing trend of establishment of legal coastal protection measures in various areas of the Mediterranean coastline. As far as high density monk seal areas is concerned, an ineffective implementation/management of many areas, mostly due to the lack of local community involvement in the protection scheme *per se*, results in the protection remaining mostly on paper. An analysis of successful MPAs indicates that the consultation between a sound management body (which may also be composed of experienced NGO's) and the users of the area and their participation in the decision-making process are among the key factors for the successful enactment of the protection scheme. The effectiveness and establishment of the protected areas present in actions 1 and 2 listed above should therefore be ensured through active community involvement.

Targets:

Ensure active involvement the local communities within the management schemes of Marine Protected Areas (i.e. such an involvement may be enforced, where this is feasible, through the presence of local NGO's).

Description:

A local MPA committee should be formed in each MPA established for the purpose of monk seal protection, under the coordination of the relevant public administration responsible for the management of the relevant area. The committee should consist of representatives of all groups having direct or indirect interest on the MPA, such as local fisheries organisations, local governmental authorities, harbor masters, port police, municipality, local NGOs, tourism companies, coast guard etc. The committee should ensure the involvement of the stakeholders in all the decision-making stages of the MPA and should tackle with the unforeseeable threats/problems on the monk seal/habitat while meeting the needs of the local residents by planning sustainable resource use, especially with regards to those thematics pertaining to action 2. In cases where MPAs are controlled by Management Bodies (such as in Greece), local NGOs and local community representatives (those identified in the local MPA committee described above) should also be integrated in the Management Body. Patrolling of the area should be made independently by a local team assigned by the committee and should foresee patrolling actions also on behalf of the local legal enforcement authorities. The committee should also identify possible methods to diversify the economic benefits stemming from the protected area in such a way that they benefit directly back to the local communities as well as to the overall conservation scheme.

Areas involved:

Areas identified by enactment of Action 1 and 2.

Responsibility:

The formation of the committee should be initiated by the cooperation of a governmental authority and non-governmental organisations. Once the committee is established, the proposed activities for high-density areas (Actions 1 and 2) should be implemented by the local committee under the

co-ordination of the governmental authority i.e. the Ministry of Environment/Fisheries, etc. and of the groups involved in monk seal research and conservation. The committee should consult universities and research institutes for management plans, for socio-economic aspects and for analysing alternative income potentials of the MPA.

Stakeholders:

Local communities.
Fishermen – Divers.
Tourists and tourism companies.

Budget (per year):

Greece	Activity	Financial Figure
National Marine Park of Alonnisos N Sporades	Overall running cost	500 000
Kimolos & Polyaiagos islands	Overall running cost	350 000
Northern Karpathos & Saria area	Overall running cost	350 000
Total		1 200 000

Turkey	Activity	Quantity	Financial Figure (US)
Foca – Yeni Foca, Mordogan, Karaburun Cesme, Alacati Dilek Peninsula -Kusadasi, Kudur Peninsula – Karaada, Bodrum Datca-Bozburun, Gocek-Fethiye, Olimpos National Park-Kemer, Gazipasa-Tasucu,	NGO Office Running Staff	8 office 8 persons	200 000 100 000
	Analysis of the areas for ecotourism potential	8regions	25 000
	Patrolling and monitoring Equipment (patrolling boats) Rangers Fuel	6 boats 8 rangers 8 boats/	450 000 200 000 100 000
	Total		1 075 000

Implementation calendar:

Turkey

Establishment of local committee: 6 months.
Setting up a patrolling system: 6 months.

Greece

In Greece the patrolling systems are already set up. The continuation of these systems should be ensured.

Expected results:

Active protection of the important monk seal habitat will be achieved through the enforcement of the conservation measures. Local communities will benefit economically from a well managed use of the marine resources, while contemporarily understanding and defending - through the direct involvement in its protection - the added value of a viable population of monk seals in relation to the local economy and potential ecotourism application.

B. LOW DENSITY AREAS

Action 1: Enactment of monk seal conservation activities in existing or recently established marine protected areas

Justification:

The establishment of marine protected areas for the conservation of the monk seal is an action that has been requested of Mediterranean states ever since the formulation of the first international action plans for the species. However, such an action has been very slow in being enacted mainly due to the difficulty of marine protected areas to become established. Present establishment of marine protected areas in countries with low or unknown numbers of monk seal may not necessarily contemplate specific actions for the conservation of the species, as the species may be considered absent or not pivotal for the management of the marine protected area. However, seals inhabiting coastlines with scarce populations of seals (and that therefore may be more inclined to manifest vagrant behavior) would be more enticed to inhabit a specific stretch of coast if protection measures were such to guarantee protection from disturbance and suitable habitat.

Targets:

Guarantee protection and adequate resting habitat to eventual small numbers of animals transiting through marine protected areas.

Description:

- Include monk seal shelters (past and present), in the integral zones (core zones) of established or to-be established marine protected areas. The protection measures should be similar to those applied in the protected areas described in Action 1, A. High monk seal- density areas.
- Ensure patrolling of these areas to guarantee that no human disturbance is created in proximity to monk seal caves. Involve the artisanal fishermen community (or other local community stakeholders) affected by the fishery/other restriction measures in the patrolling and management of the area so as to create alternative economic revenue to that not guaranteed by the partial fisheries restriction.
- Design, install and implement a method of monitoring the shelters to check for monk seal cave usage through the application of non-invasive technologies.
- Installment of educational tabloids and creation of educational material for visitors transiting through the MPAs (where this is applicable, see education activities).
- Ensure that no illegal and destructive fishing activity is carried out near or in proximity to the core zones (see action 1 of high density areas). In particular, develop educational programmes aimed at reducing the effect of illegal activities such as dynamite fishing.

Areas involved:

Tunisia - La Galite Archipelago, Zembra and Zembretta.

Morocco – Al Hoceima.

Algeria – Al Kala National Park.

Lebanon- Palmeria Island Reserve.

Syria – Oum out Tiur and future MPAs to be established in the northern part of the country.

Cyprus- Akamas future MPA and future MPAs characterised by monk seal sightings.

Note:

Libya- the country at the moment has no established MPAs or any projects for their establishment, yet the Cyrenaican coast is a very promising area with regards to monk seal sightings and possible presence of small groups of the species. The above-mentioned action should therefore be applied at the moment in which the country foresees the enactment of future MPAs.

Responsibility:

Research institutes involved in marine biological research, marine biological diversity and monk seal research.

NGOs.

RAC/SPA.

Stakeholders:

Local communities present in the sites of MPA establishment.

Fishermen and fishing cooperatives.

Diving clubs.

Budget:

100,000 US \$ / year for each area.

Implementation calendar:

1-2 years for identification of the core zones with monk seal habitat and legal establishment of MPAs and core zones.

1 year for set up of a monitoring programme involving patrolling and cave monitoring.

6 months for design and production of educational material.

Monitoring activities: ongoing project.

Expected results:

Protection of coastal sites having suitable monk seal habitat and characterised by the presence of single animal sightings.

Continuative collection of information on monk seal coastal present.

Enticement of coastal usage on behalf of monk seal individual transiting through established MPAs.

Action 2: Conservation initiatives in areas with alternative protection measures other than MPAs

Justification:

Many coastal areas of the Mediterranean countries (including the borders of states) are often characterised by the presence of military bases or off-limit zones, which contribute in making the coast inaccessible by humans and also a very pristine and healthy environment. In cases where there is geomorphologically interesting habitat for the species and monk seal presence this may play a great benefit for the species' survival. On the other hand, the restricted status of these areas makes it difficult for research and conservation to be carried out so there is a lack of information on monk seal status in these areas.

Targets:

Ensure a good information programme amongst the military corps operating in maritime areas with monk seal presence so as to guarantee protection and adequate resting habitat to eventual small numbers of animals present in areas under military jurisdiction.

Description:

Research groups working on monk seal conservation in their respective countries could develop collaboration schemes with the relevant national military authority having jurisdiction over the specific area involved. The collaboration scheme should be supported and coordinated by the national public authority involved in wildlife protection or marine resource conservation (i.e. Ministry of Environment etc.) so as to guarantee efficient and official collaboration with Military sectors, divisions. The collaboration scheme could foresee the following activities for each area:

- Identification of suitable monk seal habitat in each area and development of core zones/protection measures for each area.
- Develop military involvement in the enactment of protection measures in areas under military jurisdiction characterised by monk seal habitat and presence (core zone establishment, control over illegal fishing activities, modification of human use of the stretch of coast involved, eventual reduction of disturbing activities such as military exercises in proximity to monk seal caves).
- Increase awareness of the soldiers present in the area through educational programmes and meetings with soldiers.
- Find means of avoiding fishing activities in areas where breeding is observed.
- Allow monitoring to take place in these areas or in areas just adjacent to them.

In geographic areas where it is hypothesized that monk seals may move across borders, the researchers involved should try to collaborate with groups of neighboring countries in sharing information concerning monk seal individuals observed and monitored in their areas so as to guarantee a flow of information concerning individuals moving across borders and thus facilitating a wider geographic protection scheme regardless of country of origin.

Areas involved:

southeastern border of Turkey.
northern border of Syria.
eastern border of Algeria.
western border of Tunisia.
western border of Egypt.
eastern border of Libya.
Islas Chafarinas.
Cap Trois Fourches (Morocco).
Capo Teulada (southwestern Sardinia).

Responsibility:

Defence Authorities and Environment Authorities.
Researchers with experience in monk seal work.
Ministry of Environment (or alternative authority involved in wildlife and marine conservation).

Stakeholders:

Defence Authorities.

Budget:

30,000-50,000 US \$ / year per area.

Implementation timetable:

1 year for collaboration agreements to be formulated within each country.
1 year for identification of monk seal shelters to monitor and identification of specific protection measures to be applied in each area.
8 months for development and implementation of educational programmes geared at soldiers.
Monitoring: ongoing.

Expected results:

Protection of single animals transiting through military areas and monitoring of threats to the areas as well as of animal presence.
Increased trans-boundary cooperation involving research communities and increased collaboration between research and public and military officials of different domains.

HEADING 3: IMPROVE THE KNOWLEDGE OF THE STATUS OF THE SPECIES AND THE HABITAT AVAILABILITY

The actions listed below are considered necessary in order to obtain a minimum base knowledge on the status of the species for the application of any conservation action in the different regions of Mediterranean.

MEDITERRANEAN LEVEL

- Formulation of national groups of experts and establishment of a working collaboration between them.
- Defining a research and work methodology protocol that suits each region or sector of the coast

<ul style="list-style-type: none">• ACTION 1: Collecting information from local population / establishment of national monitoring schemes.

Justification:

While it is undoubtedly true that monk seal numbers have dramatically declined in the Mediterranean, it is likely that monk seal individuals and breeding groups still inhabit some countries of the basin. The inevitable loss of information in case of eventual sightings calls for a comprehensive effort in retrieving sighting information. It is already known that valuable information on the species can be gathered from local inhabitants of the coastal and inland parts of each country. A first level of information (A) can be collected through interviews with local inhabitants and in particular with the fishermen who are the first category most likely to have witnessed a monk seal sighting. A second level (B) of data collection can be enacted in countries where logistical circumstances can support it, through a permanent information network (as one created in Greece, Adamantopoulou, 1996) that can serve as initial baseline-monitoring tool of the species in the medium to long term.

Main goal: To obtain updated information on the species in different regions, while at the same time setting up a collaboration with local inhabitants

A) First level: Collection of Information through Interviews conducted within the fishing communities operating in areas where monk seal presence is hypothesized/needs verification

Countries involved:

MAROCCO/ALGERIA/TUNISIA/EGYPT/CYPRUS/SYRIA (already started by RAC/SPA and High Institute of Marine Research in Lattakia), ALBANIA, CROATIA, LIBYA,
(note: this action has already been fulfilled in Libya during may 2002)

The fulfillment of this action is based on the following objectives:

- To collect information from the fishermen on monk seals occurrence, and specifically from the areas where the species was sighted in recent times.
- To determine which are the areas that seals prefer.
- To determine, in an indirect way, if fishing interactions or deliberate killings is still a threat for the species.

Targets:

Local artisanal fishermen and personnel from fishermen cooperatives.

Responsibility:

RAC/SPA, reserarchers from national research institutes devoted to marine conservation or local NGOs. Scientific personnel involved in monk seal conservation programmes in other countries could participate in the initiatives in the form of a collaboration scheme.

Provisional budget:

8,000 US \$ /each country (including personnel expenses).

Implementation calendar:

- 15-20 days to conduct the inquiries in each area.
- 2 month to gather, to process and to report data collected.

B) Second level: Creation and Operation of an Information Network

TUNISIA: Establishment of a National Information Network, once action A) (see above) has been finalised.

TURKEY: Organisation on a national level of the Census of monk seal sightings witnessed by fishermen in Turkey and establishment of a National Information Network.

GREECE: Continuation of the operation of the already existing National Information Network so as to monitor the status of the species at a national scale in time and space.

ITALY: Establishment of a National Information network regarding Sardinia, the lesser Sicilian islands and southeastern Italy (Apuglia region).

Provisional budget:

The approximate cost of the network that already exists in Greece is 60.000 US \$ (Including 2 persons, which apart the collection and retrieve of data, they are conducting 6-5 surveys per year to selected areas within the 15000km of the country's coastline, in order to perform presentations to local communities and to collect information through interviews. This personnel are also responding in cases of dead seals, found and reported through the network, in order to conduct autopsies/necropsies).

• **ACTION 2: Preliminary Habitat Identification Surveys**

Justification:

It is already known that in some areas there are still seal sightings as well as potential habitat suitable for resting, and breeding. Field surveys are necessary to identify these potential habitats and to verify the presence of the species. In this sense it will be useful to split the countries in "high" monk seal density occurrence and "low" monk seal density occurrence countries. The first category includes countries such as Greece and Turkey, while the second includes the north west coast of Africa and sectors of the eastern Mediterranean.

Main goal: To identify potential coastal habitat and verify the presence of the species in order to foresee measures for its protection.

A) High monk seal-density areas

GREECE and TURKEY: Although within these countries important breeding monk seal habitats and populations have been identified, through extensive field research, it is very possible that additional breeding sites exist. It is considered important the identification of such habitats/populations throughout the coasts and islands of these countries.

Targets:

Regional and National institutions that are responsible for conservation of marine environment in the listed above countries.

Responsibility:

UNEP - RAC/SPA, relevant National Authorities, experienced NGOs, with the participation of specialised researchers.

Provisional budget:

Considering the coastline and islands surrounding these countries these High-density areas will be selected (according to already existing information on the species) three (3) different areas within Greece and two (2) areas within Turkey. With this consideration the provisional budget will result in 15.000 US \$ / area.

Greece 3 areas x 15000 US \$ / area = 45000 US \$

Turkey 2 areas x 15000 US \$ / area = 30000 US \$

Implementation calendar:

- 2 months including logistical of the campaign and the survey and patrol of the areas
- 2-3 months to proceed and to report data collected.

B) Low monk seal-density areas

Coastline surveys to catalogue habitat suitable for the species:

MOROCCO, ALGERIA, TUNISIA, LIBYA, EGYPT, CYPRUS, SYRIA (a specific concerted research should be carried out synchronously on either side of the Turkish - Syrian border), ALBANIA, CROATIA, SPAIN – Chafarinas Islands (North Africa).

Targets:

Regional and National institutions that are responsible for the conservation of the marine environment in the listed above countries.

Responsibility:

UNEP - RAC/SPA, relevant National Authorities, experienced NGOs, with the participation of specialised researchers.

Provisional budget:

15.000 US \$ / area

Implementation calendar:

- 2–3 months including logistical organisation of the campaign and execution of the survey of the areas.
- 1 month to process and to report data collected.

• **ACTION 3: Long-term field monitoring (of seal populations and human activities) and identification and protection of breeding sites**

A long-term monitoring is needed in areas where the presence of the species has been confirmed (based on results obtained from Action 1A and B), where the species is resident (based on results from Action 1A and B) and especially in those areas where breeding activity has been recorded. A continual monitoring of human activities in such areas is also necessary in order to determine the degree of disturbance. The monitoring could be carried out with the already tested methodologies (direct observations, visit to the caves, installation of automatic cameras, infrared photocells or videocameras in caves, etc)

Main goal:

- To establish new monitoring activities in places where the seal has been sighted (based on results obtained from Actions 1 and 2) and to continue and increment monitoring on places where the species is resident and reproduce
- To collect data sets, through time, for each population in order to determine its conservation status and population trend and most importantly, to establish an adequate and specific species conservation and management plan.

A) High monk seal-density areas

GREECE and TURKEY: Field long-term monitoring is considered an essential part of the management of the protected areas that are established or are under established within these countries (see Heading 4: CONSERVATION). Besides, the identification of breeding sites has to be one of the main objectives of this long-term monitoring, because it will lead to locate new core zones for protected areas.

GREECE: In the National Marine Park of Alonissos N. Sporades (the most extended protected area in the Mediterranean established for the conservation of the species in 1992) as well as the areas of N. Karpathos-Saria and Kimolos-Polyaigos islands (planned to be declared protected) there are already long-term monitoring schemes established. These long-term monitoring should be continued in order to ensure the scientific evaluation of the protection measures. In parallel a peer monitoring system should be reestablished in the Ionian Sea islands (Zakynthos, Kefallonia, Ithaca islands and adjacent islets) where resident breeding monk seal populations have being monitored before.

TURKEY: The Turkish National Monk Seal Committee and its technical sub-committee composed of representatives of the universities and NGO's actively conducting field surveys documented the most important monk seal habitats along the Turkish coast. Based on their evaluation, 14 critically important sites were determined.

Detailed investigations have already been accomplished for some of these areas, such as Gazipasa-Tasucu, Foca, Karaburun, and important breeding have been discovered. However, there are some areas where more research is needed, such as Olympos National Park, Gocek Fethiye. A complementary field survey is therefore urgently needed. This survey should aim to determine active breeding caves and should be carried out in late

September and October since the whelping reaches to a peak in these months (Gucu et al., in press).

Target:

The scientific community and those regional and national departments that are responsible for the conservation of the monk seal, the Maritime Fishing Boards, the Navies, the National Forestry Commissions, etc.

Responsibility and execution:

The relevant National Authorities, the Management Bodies of the Protected Areas, experienced NGOs with the participation of specialised scientists.

Lead agency:

RAC/SPA National Focal Point.

Approximate cost:

80,000 US \$ / year in each area (All this areas are extended in space, p.e Sporades is 2200km²) This cost is already included in the Conservation Chapter.

Set-up timetable:

Early 2004.

B) Low monk seal-density areas

NORTH AFRICA AND EAST MEDITERRANEAN Carrying out the ecological monitoring of seal populations or groups and engaging in the permanent monitoring of human activities

Description:

This action aims to start-up distinct monitoring activities of the coastal sites, which will be identified based on the results obtained by the enactment of Action 1B and 2B. Monitoring of the coastal sites, conducted on a medium-long term basis should be able to provide the scientific community with sufficient means to determine the size and the conservation status of the monk seal populations residing in the low monk seal-density areas where data on the species is currently lacking. The latter information must be collected rapidly and efficiently so as to guarantee , for each country involved, the planning of a strong protection and management programmes aimed at the recovery of the species on the basis of solid scientific ground. Monitoring should be best carried out through the use of non-invasive methodologies (binoculars, application of photoidentification methodologies, use of automatic cameras, infrared photocells or cameras placed in caves or coastal sites utilised by the species,). Depending on the area concerned, some locals, the marine military corps, and the Maritime Fishing Board may be involved in such monitoring schemes.

Target:

The scientific community and those regional and national departments that are responsible for the conservation of the monk seal, the Maritime Fishing Boards, the Navies, the National Forestry Commissions, etc.

Responsibility and execution:

UNEP - RAC/SPA, relevant National Authorities, experienced NGOs, with the participation of specialised researchers.

Lead agency:

RAC/SPA National Focal Points.

Approximate cost:

20,000 US \$ / year in each area.

Set-up timetable:

Early 2004.

