EP

United Nations Environment Programme

UNEP(DEC)/MED WG.270/Inf.26
30 June 2005

ENGLISH

MEDITERRANEAN ACTION PLAN

Meeting of MAP Focal Points

Athens (Greece), 21-24 September 2005

PROPOSAL FOR AN INTERVENTION ON THE CORALLIGENOUS IN THE MEDITERRANEAN SEA

Pour des raisons d'économie, ce document sera disponible en quantité limitée pendant la réunion. Prière de vous munir de cet exemplaire.

PNUE
CAR/ASP - Tunis, 2005

Note : The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of UNEP or RAC/SPA concerning the legal status of any State, Territory, city or area, or of its authorities, or concerning the delimitation of their frontiers or boundaries. The opinions expressed in this information document are those of the author and do not necessarily represent the views of UNEP.

© 2005 United Nations Environment Programme
Mediterranean Action Plan
Regional Activity Centre for Specially Protected Areas (RAC/SPA)
B.P.337 –1080 Tunis CEDEX
E-mail : car-asp@rac-spa.org

The original version (French) of this document has been prepared by the Regional Activity Centre for Specially Protected Areas (RAC/SPA) in collaboration with :

M. Chedly RAIS
Expert in Marine biology
Tunis, Tunisie

Proposal for an intervention on the coralligenous in the Mediterranean Sea

Preliminary observations :

This document was the product of analysis and synthesis of the regional report 'The coralligenous in the Mediterranean' (RAC/SPA, 2003), elaborated as part of the Strategic Action Plan for the Conservation of Biodiversity in the Mediterranean Region, and the results of the planning work for the biennial period 2006-2007. It integrates the recommendations made by the Protocol on Specially Protected Areas and Biological Diversity in the Mediterranean, and those made in the document 'Strategic Action Programme for the Conservation of Biological Diversity (SAP BIO) in the Mediterranean Region'.

This is a proposal by RAC/SAP for intervention on a new subject as part of its activity programme for the biennial period 2006-2007. The main aim of this intervention would be elaborating a work programme on the coralligenous in the Mediterranean.

1. What is the coralligenous?

1.1. Definition and description

The coralligenous is a formation that is characteristic of the rocky substrata that host very varied benthic species, that goes down to between 10 and 70 metres, and lies between the *Posidonia oceanica* phanerogam meadows and the silty coastal beds.

It is a bioconstruction, for it is made up of encrusting algae sealed in by sedimentary deposits and debris from various invertebrates living in conditions of reduced luminosity and in relatively calm water. It usually develops in the circalittoral, but can also prosper in the lower infralittoral if the level of radiation is low enough to permit the growth of the coralline incrustations that form the concretions.

The coralline algae (genus *Mesophyllum* and *Pseudolithophyllum*) are the main builders of the coralligenous, but there are animal constructors too, the most abundant being the Bryozoa group, followed by that of the Serpula polychaetes.

1.2. Geographical distribution

The coralligenous is present on all rocky coasts when the depth permits this. It is therefore common all round the Mediterranean coasts.

The most developed formations are those in the Aegean Sea, although the best studied banks are those located in the north-western Mediterranean. Almost nothing is known of the concretions in the eastern Mediterranean.

1.3. Main features

High biological diversity

The coralligenous is, after the *Posidonia* meadow, the second pole of biodiversity in the Mediterranean in terms of its floristic and faunistic richness, characterised by a relatively high level of endemism.

One can see there a large number of species belonging to such diverse taxonomic groups as sponges, gorgonians, molluscs, bryozoa, tunicates, crustaceans and fishes. The number of species that flourish in the coralligenous has been assessed at about 1,666 (315 algae, 1,241 invertebrates and 110 fishes).

Because of this great diversity, interactions between residents are major and varied. The space being absolutely saturated with organisms, there is a great deal of competition for space and epibiosis is extremely frequent. Several examples of mutualism, commensalism and parasitism have been observed.

Heterogeneity of populations

The coralligenous is made up of many communities, from those dominated by living algae (the upper part of the concretions), suspensivores (basal part of the concretions, the rock walls of cavities, and overhangs), to drillers (inside the concretions) and even the fauna of the loose beds (in the sediment laid down in the cavities and holes). This is why the coralligenous should be seen as an underwater landscape or a jigsaw of many communities rather than one single community.

The end result produced by the builders and the organisms that eat away at the coralligenous is a very complex structure, where many microhabitats can be made out. Exogenous factors (for example, light, hydrodynamics, rate of sedimentation) can have varied effects on areas of the same concretion that are extremely near to one another. This high degree of environmental heterogeneity enables many different populations to coexist within a small area.

Age and slow growth

The age of the coralligenous concretions in the north-western Mediterranean is probably somewhere between 600 and 8,000 years depending on depth (respectively 10 and 60 metres). This means that the rate of accumulation is very slow (not more than 1 millimetre per year) and also that it varies enormously according to depth and period. The oldest coralligenous formations stated developing 7,000 to 8,000 years ago, when the water layer above the concretions was probably no more than 10 to 15 metres high. Since these periods of colonisation, the rate of accumulation has gradually dropped.

2. Main causes of disturbance

There are five main sources of disturbance that affect the coralligenous population:

1. Major large-scale events involving a mass mortality of suspensivores seem to be linked to higher temperatures, but the ultimate causes are not clear. It is possible that there is a link with the current global warming.

2. Waste water has a profound effect on the structure of the coralligenous by stopping the growth of coralline algae, increasing the rate of bioerosion, reducing the specific richness and the density of the biggest epifauna individuals, eliminating some taxonomic groups (for example, most of the echinoderms, bryozoa and crustaceans) and increasing the abundance of extremely tolerant species.

3. Fishing is an important cause of coralligenous degradation. Trawling is particularly destructive, given that it physically destroys the coralligenous structure and also increases turbidity and rates of sedimentation, thus harming algal growth and the feeding of the suspensivores. Traditional fishing, and sport fishing, mainly affect target species, but most of these quickly recover after a ban on this type of fishing or after management measures are implemented.

4. Coralligenous sites are aesthetically particularly interesting, offering spectacular underwater landscapes, which makes the coralligenous habitats highly appreciated by divers. This is a recent cause of degradation, affecting outstanding sites that are essentially located in the sectors most frequented for pleasure diving.

5. Invasive foreign species can create major disturbance. The turf-forming red alga *Womersleyella setacea* is particularly dangerous for the coralligenous since it forms a dense mat over the coralline algal incrustation, preventing the photosynthesis and growth of the main coral-builders.

3. Secretariat's (RAC/SPA) proposal

3.1. Justification

The Protocol on Specially Protected Areas and Biological Diversity in the Mediterranean invites the Contracting Parties to the Barcelona Convention to 'protect, preserve and manage…areas of particular natural value' (Article 3.1.a) and also to 'protect, preserve and manage threatened or endangered species of flora and fauna' (Article 3.1.b).

The coralligenous habitats are 'spaces' and 'species', being at one and the same time the biotope and its associated biocenosis.

Many coralligenous species are listed in Annexes II and III of the SPA/BD Protocol. We could mention the algae *Laminaria roderiguezii* and *Ptilophora mediterranea*, for which the coralligenous beds are refuges in the Mediterranean. All the sponges listed in Annex III to the Protocol are potentially present in the coralligenous habitats, as well as the sponges *Axinella polypoides* and *Geodia cydonium* listed in Annex II. The bushy anemone *Gerardia savaglia* and the red coral *Corallium rubrum* are very characteristic of the animal community living in conditions of weak luminosity. Some mollusc and echinoderm species living in the coralligenous are also extremely threatened: the diadem sea urchin *Centrostephanus longispinus* is very often present. And almost all the crustaceans in Annex III (particularly the spiny lobster and the lobster), plus the fishes *Epinephelus marginatus* dusky grouper and *Sciaena umbra*, are commonly found near the coralligenous beds.

The Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region (SAP BIO) has identified protecting the coralligenous as a priority and advocated action at regional level.

3.2. Aims to be attained in 2006-2007

Establish and as far as is possible initiate the implementing of a work programme to conserve the coralligenous biocenosis in the Mediterranean. This work programme should especially address the priorities identified within the SAP BIO context:

1. Redynamise scientific research to fill the existing gaps in knowledge on the coralligenous
2. Adopt preventive measures, under the precautionary principle, concerning the discharge of effluent, and anthropic activities involving increased turbidity, fishing, tourist activities, etc.
3. Develop Protected Marine Areas as a tool to protect coralligenous habitats
4. Set up monitoring networks.

3.3. Actions suggested as part of RAC/SPA's programme for 2006-2007

1. Prepare a draft work programme based on present knowledge and the analysis done in the SAP BIO context, to be submitted to a group of experts
2. For the second half of 2006 organise a meeting of experts on conservation of the coralligenous in the Mediterranean. This meeting will be intended to develop and validate the draft work programme, and also to identify priority actions, potential partners and cooperation mechanisms to be implemented
3. Finalize the draft work programme for it to be submitted to the Eighth Meeting of National Focal Points for SPAs.

3.4. Possible partners

(the list is not exhaustive)

- The CIESM (International Commission for the Scientific Exploration of the Mediterranean)
- The Marseilles Oceanological Centre
- SIBM (the Italian Marine Biology Society)
- IEO (the Spanish Oceanography Institute
- ICRI (the International Coral Reef Initiative)
- ICRAN (the International Coral Reef Action Network)

3.5. Budget to be provided for (in euros)

Proposed action	**2006**	**2007**
Meeting of Experts	30 000	
Elaboration of draft work programmes	5 000	
Total	**35 000**	