

The need for binding management measures at regional level in the fishery of Red Coral (*Corallium rubrum*) in the Mediterranean.

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*Should a symbol be adopted for the Mediterranean Sea, which is the cradle of western civilisation, I believe the most fitting one would be a branch of red coral (*Corallium rubrum*).*

Habib Ben Alaya - former GFCM Executive Secretary.

I have chosen this phrase of Habib Ben Alaya, taken from the book RED CORAL IN THE MEDITERRANEAN SEA, ART HISTORY AND SCIENCE published in 1994 by the Ministry of Agricultural and Forestry Policies of Italy, to emphasize the role that red coral has had and continue to have in the culture, economy, livelihoods and environment in the Mediterranean Sea.

Since the 1980's red coral harvest and management has been at the centre of intense debates between Mediterranean countries in order to find ways to improve management and decrease over-harvesting.

GFCM (General Fishery Commission for the Mediterranean) has been involved in the management of the red-coral resource since 1983, the year of the first Technical Consultation on Red Coral, as a reaction to over-harvesting with non-selective gears off the island of Alboràn (Spain).

Subsequently, FAO-GFCM has convened two more consultations on the fishery of *Corallium rubrum*: one in 1988 in Torre del Greco and one in 1989 in Algeria on the development of a scheme for rotating harvest of Mediterranean red-coral resources, and a symposium in Vicenza, Italy in 1991.

The ban of non-selective and destructive harvest methods such as the "ingegno" or the "barra italiana" was a first remarkable success in the management of the species by GFCM in this period.

These efforts by GFCM were partially driven as a reaction to a proposal submitted by Spain to include the red coral in Appendix II of the Convention on International Trade in Endangered Species. The proposal, submitted at the sixth meeting of the Conference of the Parties to CITES (Ottawa, Canada, 1987), was rejected.

In the subsequent years only the traditional artisans and a few scientists continued requesting various Governments in the Mediterranean region to improve the

management of the resource and legislations containing some of the recommendations provided by GFCM in the previous years were enacted,

A proposal to include the genus *Corallium* in CITES was presented by the United States of America at the 14th meeting of the Conference of the Parties (The Hague, Netherlands, 3-15 June 2007) in order to restrict trade to coral originating from a managed fishery. The IUCN and a Panel of Experts gathered by FAO concluded however that it was not possible to say with certainty if any Corallidae species met the criteria for inclusion in CITES Appendix II, and that strong local management would be more effective for the conservation of the resource than any CITES listing, while creating minimum bureaucratic costs and placing a smaller burden on the industry. The proposal was ultimately rejected, and two expert consultations convened by the Government of the United States of America and the Government of Italy were held with the aim of discussing the conservation of Corallidae species.

The consultation held at the University "Parthenope" of Naples in September 2009 gathered some of the world's foremost experts in ecology and conservation of Corallidae. The Management Working Group, which included also traditional artisans from Torre del Greco, stated by consensus that an improvement in management was urgently necessary to ensure a sustainable fishery of the Mediterranean red coral, and stabilize its traditional jewellery industry. The group of experts expressed great hope that the GFCM would take responsibility in managing this resource by uniting expertise and providing direction to the Mediterranean countries that harvest *Corallium rubrum* (see Annex1).

Nevertheless, the United States of America presented a new proposal to include that time the whole family Corallidae in CITES at the 15th meeting of the Conference of the Parties (Doha, Qatar, 13-25 March 2010).

Also this proposal was rejected by the Conference of the Parties because the criteria for inclusion were not considered as met, implementation and enforcement issues and, especially, the Parties felt that a proper management under the relevant RFMO was far more important and efficient for the conservation of these species than trade controls.

The GFCM was specifically mentioned during various interventions at the CITES Conference as the most appropriate body to start new management actions on the Mediterranean species of precious corals. Only few months before that Conference, the Italian Government presented at the 12th Session of the Scientific Advisory Committee (Budva, Montenegro, 25-29 January 2010) a new working plan for the Red Coral in the Mediterranean including this workshop.

It appears therefore very clearly that trade restrictions are not considered as the most appropriate measure to achieve the sustainable utilisation of precious corals.

The conservation of the red coral and the livelihoods of thousands of people across the Mediterranean Sea who depend fully on this species, are now in the hands of

fishery managers and the devising and implementation of common management measures in the region and related management plans are imperative.

In the Mediterranean several management measures are in place in countries where *Corallium rubrum* is harvested, ranging from size limits, harvesting season, reporting, and more detailed management plans including closed areas and quotas. Most of these measures were developed after the FAO-GFCM Technical Consultations in the period 1983-1991, although, for example, Sardinia (Italy) has a legislation in place since 1979, which has been modified and improved several times in the last 30 years, and which is considered by many as a model for sustainable management of Red Coral in the Mediterranean Sea.

The following table summarizes the measures enacted by some countries around the Mediterranean:

Table 1. List of management measures in *Corallium rubrum* fisheries of some Mediterranean countries (adapted from :
 Proceedings of the First International Workshop on *Corallium* Science, Management, and Trade March 16-20, 2009 Hong Kong, China - U.S. Department of Commerce
 National Oceanic and Atmospheric Administration National Marine Fisheries Service - September 2009)

Management measures	Spain	Italy	IT Sardinia	Morocco
Corallium harvest banned	No	no	no	no
Exclusive rights (cultural, finder claim/stake rights)	?	yes	yes	
Established fishing areas	yes inner/outer waters	?	yes	yes
Coral bed closure for recovery (rotation)	No	?	yes	yes
Establish refugia for <i>Corallium</i>	Yes	yes (MPAs)	yes (MPAs)	yes
Permits/licenses issued	Yes	yes		yes
License validity expires	1 year/renewable	?	1 year	1 year
License restrictions	Diver	?	yes	Boat
Vessel restriction	None	?	yes	<50 ton gross wt
Allowed fishing days/year	1 May-30 October	?	season	None
Quotas in place	Yes	?	daily limit	yes
Harvest season	1 May-30 October	no	yes	no
Gear	Scuba only	scuba only	Scuba only	Scuba only
Min size	Yes	no	yes	no
Reporting	Yes	yes	yes	yes
Report landings	Yes	yes	yes	yes
Report gross weight	Yes	no	yes	no
Report depth / location	Yes	no	yes	yes
Report operation time/dives	Yes	no	yes	yes
Interval of reporting required	Daily	no	yes	daily
Report number of colonies	No	no	no	no
Report sales	Yes	no	no	yes
Observers used in fishery	No	no	no	no
Spatial monitoring	No	no	no	no
Fishery indep. monitoring program	Pulse-research	Very pulse funding	research dependent by law	pulse-research
Reports of bycatch in coral fishery	NA	no	no bycatch	None
Adaptive Management Measures	?	no	yes every year	?
Enforcement	Coast Guard	Coast Guard	Coast guard	Marine authority
Penalties	Fine	?	mild to strong fine including seizure of gears and suspension of licence.	Marine authority

It is highly advisable that the relevant Subcommittees of the Scientific Advisory Committee of GFCM start to devise, with the help of *Corallium rubrum* experts around the Mediterranean, specific binding measures for submission to the General Commission, as a first step towards a model management plan. This management plan should be adopted in a feasible time in order to be then implemented at the national level in Mediterranean countries harvesting red coral.

Among the management measures that should be adopted at regional level, I would like to mention:

- Protection of the shallow water populations by enforcing the prohibition of the use of air-breathing systems to collect red coral;
- The introduction of seasonal quotas based on population studies;
- A minimum diameter size of 10 mm with an allowance of 20%;
- A daily and seasonal reporting system for harvesters and a monitoring system devised with a participatory approach;
- Incentives for harvesters to participate in and collaborate with scientific researches, e.g. through the establishment of associations with direct recognition by local/national authorities;
- A yearly revision of the management measures in order to adapt them to local situations;
- An adequate enforcement system;
- Provisions for continued scientific researches to sustain management;
- A system of marine protected areas with specific no-take zones for red coral in a rotational fashion (e.g. 20 years closure and then, if harvest may be allowed on the basis of scientific research, establishment of specific and strictly enforced yearly quotas).

The joint provisions of binding measures and adaptive management plans corroborated by specific scientific researches and a participatory approach involving the main stakeholders (divers, jewellery artisans) would certainly be the best approach to achieve long term conservation of red coral.

The discussions in local and international fora of the past years have clearly demonstrated that the time for management actions has come and that the best institution to carry out these actions is the GFCM.

The red coral and the associated artisanery, employing thousands of people around the Mediterranean, will greatly benefit of the adoption and implementation of such measures in a timely manner.

Marco Pani

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**Workshop on Red coral science, management and trading in the Mediterranean
(Naples, Italy 26th Sept. 2009)**

Conclusions from science and management workshop.

- *The working group expressed support for cross-Mediterranean approach to red coral management – for example through the GFCM. Desirable to have a common assessment of current management, monitoring and research measures across the region.*
- *Need local management plans under this regional ‘umbrella’ – using case studies (e.g. Sardinia / Hawaii) to improve management.*
- *A working group needs to be formed to work post-conference on developing these plans and to seek funding – there is scope to strengthen lobbying for such funding from sources such as EC, national governments and private sector.*
- *Management should be based on key scientific parameters such as population structure, density genetics, colony and population growth rates (reproduction & recruitment) and connectivity; management should be adaptive based on feedback from fishery dependent and independent data and input from relevant stakeholders.*
- *The group agreed that shallow water populations are well studied but deeper water populations are less well studied and extrapolating from shallow water studies (in selected locations) may not be appropriate.*
- *There is a general consensus that shallow water populations are, or have been, over-exploited but the overall extent of decline in the Mediterranean is not known. Therefore, there is a clear need to determine the extent of decline and/or recovery.*
- *Shallow water populations need to be fully protected from harvesting. The vertical distribution of these populations depends on local environmental characteristics. However, as a guideline for enforcement and management, these populations might be defined by the limits to which air-breathing divers can descend (typically 70m).*
- *Deep-water populations (typically 70-150m) are a priority for research and fishery management because these are the most heavily exploited populations and knowledge of population parameters are poorly known. These populations should be managed by selective harvesting using appropriate size limits. The deepest populations (>150m) are not harvested, some may never have been harvested, and should not be subject to harvest and could provide refugia for the species.*
- *The decision to ban non-selective gears was a major step forward in the regulation of the fishery. However, there is consensus that management measures and enforcement in the Mediterranean overall should be improved further taking into account the case studies referred to above. Such management measures should be*

population specific and include, but not be limited to, minimum basal diameter¹ and height of colony and branching pattern, quotas, regulation of collection methods, harvest reporting and monitoring, harvest rotation periods and the number and extent of no-take zones / protected areas. These management measures should be adaptive and be informed by proper and comprehensive scientific research on, inter alia, stock status and management models. Absence of scientific information is not sufficient excuse to not manage populations on a precautionary basis.

- *Experience has shown that management regimes that are not adequately enforced fail to yield the anticipated conservation benefits. There is a strong need for existing and future management measures to be properly enforced with inter alia sufficient resources and penalties - including confiscation - that are commensurate with the offence and represent a meaningful deterrent*
- *The working group emphasised the need for further research to underpin the management and conservation of the species; research should be collaborative and the results shared between Mediterranean countries and internationally. Regular stock assessments and national reporting, in the context of regional management, is desirable*

¹ For instance, the working group felt that the minimum basal diameters used in some areas (typically 7mm) should be increased to enable sustainable fisheries.