



**GENERAL FISHERIES COMMISSION
FOR THE MEDITERRANEAN
COMMISSION GÉNÉRALE DES PÊCHES
POUR LA MÉDITERRANÉE**



Scientific Advisory Committee (SAC)

Subcommittee on Marine Environment and Ecosystems (SCMEE)

**Report of the Workshop on the Regional Management Plan on
Red Coral in the Mediterranean**

Brussels, Belgium, 21–22 January 2014

EXECUTIVE SUMMARY

This workshop was the third of a series initiated in 2010 by GFCM with the aim of establishing a Regional Management Plan for Red Coral in the Mediterranean (RMP-RC). It was attended by 32 participants from the different sectors ranging from fishers, to scientists and managers. Representatives of administrations from 9 countries exploiting red coral, fishers from France and Italy and independent experts had the opportunity to meet and express their view and concerns over the proposal for an Adaptive Management Plan for Red Coral (*Corallium rubrum*) in the GFCM competence area prepared by a group of experts under the supervision of the GFCM Secretariat and presented to the Commission in 2013. The Management Plan (MP) was well received by all participants and seen as an important contribution to managing red coral stocks. The proposed management concept and respective measures were evaluated positively in general, and recommendations for further modifications and improvement were given. It was recognized that many coral fisheries are still data poor and thus limited in the management options. However, the newly introduced mandatory GFCM data submission tool should improve this situation. The draft proposal, with some amendments on the operational objectives, was endorsed by the workshop. The principle of a management plan based on reference points related to the percentage, in weight, of colonies below the current legal size (7 mm basal diameter) of red coral, was endorsed by the workshop. Several technical management and control measures were also considered with interest by the parties. The next iteration to adapt the plan, once a series of data are available, was recommended in three years.

OPENING AND ARRANGEMENT OF THE MEETING

1. The Workshop on the Regional Management Plan on Red Coral in the Mediterranean was held in Brussels, Belgium, on 21–22 January 2014. It was organized by the GFCM Secretariat in collaboration with the Directorate General of Maritime Affairs and Fisheries, Unit D.2 – Fisheries conservation and control for Mediterranean and Black Sea of the European Commission, who kindly offered the venue, logistics and interpretation services. The agenda is provided in Appendix A and the list of participants is included as Appendix B.

2. Ms Anna Manoussoupoulou, from the European Commission (EC), welcomed the participants and reiterated the strong involvement of the EC in promoting the development of multiannual management plans for fisheries in the Mediterranean. She praised the efforts deployed by GFCM to lay the foundations for a sustainable exploitation of red coral and expressed the full support of the EC to this approach. She finally wished all the participants a fruitful meeting.

3. Mrs Pilar Hernández, from the GFCM Secretariat, gave some background information. She explained that this workshop was the third of a series initiated in 2010 by GFCM with the aim of establishing a Regional Management Plan for the Red Coral in the Mediterranean (RMP-RC). The first document with a proposal for such a Regional Plan had been drafted in 2013 by the GFCM Secretariat with the assistance of a group of scientists from the university of Cagliari, Italy, lead by Dr Angelo Cau. This document with its proposals for objectives and management measures was the object of discussion during the meeting. The attendance of representatives from all sectors, including fishers and managers, was much appreciated since the purpose of the workshop was to assess the feasibility of the proposed plan from the different stakeholders' points of view. The conclusions and recommendations stemming from the meeting should serve to assist the Members in drafting the text for a more formal document to be presented at the next meeting of the Commission. She then introduced the chairman of the meeting Dr Georgios Tsounis and gave him the floor.

CURRENT MANAGEMENT MEASURES AT NATIONAL LEVEL

4. The representatives of the Members' administrations had the opportunity to comment on the different sections of the document related to the legal framework and the socio-economic description of the red coral fishery in their countries.

5. Algeria, France Greece, Italy, Montenegro, Spain and Tunisia stressed the need to update the section on national legal instruments for the red coral that was not fully coherent with recent laws. They also expressed concerns about the source of data in the same document used to report catches by country, and suggested to replace this information with more updated and accurate data provided by official sources. A term of one month (22 February 2014) was agreed to submit this data to the GFCM Secretariat.

DRAFT REGIONAL MANAGEMENT PLAN FOR RED CORAL (RMP-RC)

6. An overview of the draft RMP-RC¹ was presented by the Secretariat. Ms Pilar Hernández highlighted that the proposed Draft Regional plan had been designed as precautionary, provisional and adaptive: precautionary in the sense that it has been thought of as a means to maintain the *status quo* of the resource in the absence of data for formal assessments. However, lack of data does not imply that the stocks are unmanageable. The precautionary approach had been used in the framework of adaptive management. It was provisional and adaptive in the sense that it is open to be modified according to new information made available to the SAC and also adaptive in the sense of being able to accommodate existing management measures already in place by countries, provided that they be stricter.

7. Ms Hernandez also stressed that enforcement, implementation of technical measures, as well as monitoring, control and surveillance should be decided and carried out at the national level, always respecting the operational objectives, reference points and decision control rules established by the regional plan. Then she explained that the set of measures described by the draft document were suggestions that the group was invited to assess during the current workshop with the aim of establishing priorities in view of preparation by a GFCM Member of a more formal document in the shape of binding recommendations for eventual adoption by the Commission in 2014.

¹ The three parts that compose the full Draft Regional Management Plan for Red Coral (RMP-RC) are available at: <http://151.1.154.86/GfcmWebSite/SAC/SCMEE/2014/MgmtPlan-RedCoral/docs.html>. The version provided at the time of finalizing this report is the one presented to the meeting. Amendments and corrections to be provided by Members will be included after the established deadline (22 February 2014) and the links to the web site will be properly updated.

DISCUSSION ON THE FUNDAMENTAL ELEMENTS OF THE DRAFT PLAN

Operational objectives

8. The two operational objectives as described in the draft RMP-RC (see Part 3¹) were discussed.
9. Regarding operational objective 1 (Oob1) referring to the current legal size (7 mm basal diameter) and to the percentage in weight of undersized colonies, the participants agreed on the concept but the values established as reference points were discussed (see below).
10. Regarding operational objective 2 (Oob2), participants voiced concerns about basing yield levels on the three previous years of data as reported in the FAO Global Production Database as the only source of information (the current FAO databases originates from industry wholesaler records that may be biased by market effects not reflecting very precisely catch data). Using actual yield data from specific fisheries was seen as a preferable option.
11. Some participants felt the need to base Oob2 on formal stock assessments (e.g. maximum sustainable yield models, etc.) under the supervision of SAC. On the other hand, it was noted that many fisheries are data poor, and are not ready for such an analysis. In this regard, participants highlighted the urgency to collect catch data, transmit them to the GFCM Secretariat and to start some exercise of stock assessment within SAC framework.
12. Some participants expressed concerns on the one hand regarding the risk of collecting high level of historical catches during the testing period, and on the other hand concerning the relevance of a yield approach that may not take into consideration the bias introduced by fishermen targeting preferably the biggest colonies instead of a number of smaller ones.
13. After some discussion it was decided to postpone the implementation of Oob2 in the context of adaptive management and to review the definition of indicator and reference points for this objective after first scientific results on stock assessments will be obtained within the framework of SAC. In addition to this, the importance of fishery independent data coming from scientific surveys that are less affected by a subjective selectivity of fishermen towards large colonies was stressed.
14. Consequently, as a first step in the management of red coral, only the operational objective 1 (based on size) will be considered. The proposed framework of an adaptive revision in three years' time was seen as feasible and very convenient in order to collect the necessary data and implement, in the future, a more detailed efficient management system relying on Oob2 as well.
15. On this regard some voices suggested that Oob2 should only be implemented where a management plan based on weight of undersized colonies has been proven not to be effective, although most participants expressed opinions in favor of the application of Oob2 in the shortest delay when data allow for the establishment of yield based reference points also to be in coherence with the GFCM Guidelines on Multiannual Management Plans. Reference points
16. Regarding Oob1, participants agreed on the concept but the values established as reference points (RP) and the appropriate timeframe to assess these values were discussed. Consensus was reached to modify the values of the target reference point to 0 % in weight of colonies under 7 mm basal diameter, the precautionary (or threshold) level was set at 10% and the limit would be 15%. No action is needed between 0 and 10%, but once this value is reached the actions suggested in the proposal should be triggered.

Decision rules

17. Regarding the actions corresponding to decision control rules, when the current size is below the limit reference point, besides those indicated in the draft document, additional actions for the control of harvesting were suggested to be implemented before resorting to the extreme of considering the closure of the fishery.

18. The timeframe and geographical scale of the actions to be taken when the precautionary RP or the Limit RP are overpassed will be decided by the CPCs provided that on the annual dataset to be transmitted to the GFCM, the country total landings respect the Recommendation of 2012 (minimum legal size is 7 mm with 10% of tolerance based on total annual weight). Nevertheless as the stocks distribution is patchy and very local, CPCs should ensure that this average size will be also respected on a daily (or weekly) basis for all fishing grounds through the establishment of systematic (daily or weekly) control of catches at ports.

Data needs

19. The following presentation was delivered: **The Schaeffer production model for the setting of operational objectives: an example from Sardinia (Follesa *et al*)**. This presentation is based on data gathered through logbooks from 1990 to 2012 thanks to the implementation of the management plan in Sardinia. The model showed that the B_{2012} (biomass present at sea in 2012) appeared lower than the biomass values registered in the 1990s and than the carrying capacity (limit value where the red coral biomass should stabilize without harvesting) and the total weight of undersized colony was overpassing 10% in most of the fisheries assessed.. The results called to caution, as they appeared to indicate that current biomass are half of those registered in the 80s The presentation was well received, though some participants felt that besides global production models, that require long series of yield data as well as effort monitoring, analytical models that consider population structure are also indispensable for setting management objectives for a durable fishery, especially for a species with very low recruitment and growth rates.

20. Presentation on: **Conservation and management of the high valuable Mediterranean red coral-the deep dwelling commercial populations (Santangelo *et al*)**. The presentation showing results from bottom surveys through Multibeam Echo sound and records of 60 ROV transects shed some light on the little known deep populations of red coral, and found that only 35–40% of the corals have reached a size above the legal size limit and very few colonies had reached the species maximum size. Their experience also demonstrated that determining the coral basal diameter using ROV technology was challenging.

21. The new GFCM data submission tool created by the Secretariat consisting in three excel sheets (management, harvest and biological information) was presented. It was very well received as a tool to address the lack of data necessary for sustainable management. Several issues were discussed and clarified, and the following suggestions for modifications were made:

- A column for comments should be added that will serve as a development phase based on user feedback, which would be useful especially during the first year. The users should indicate whether the percentage of undersized colonies present in the catch are estimated from samples, or reported as total.
- A data field should be added on the first sheet (management) to identify research projects in which ROVs have been used for prospecting (if applicable).
- On the identification, location and dimension of the banks, it was pointed out that it could be easier to identify them by name of fishing ground (or area), rather than by bank, and also by the landing port. The size of the area, even if it is approximate size would remain as an optional field. Divers might have the tendency to keep the location and extension of the banks as a professional secret and therefore the privacy of data needs to be ensured.
- On the management part, it was also recommended to add as many sheets per region as necessary.
- The importance of including bottom dive duration in the sheets was also discussed.
- Indications on the fields that are mandatory and those remained as optional were also requested.

22. Although potentially important information, the total number of colonies was not considered a feasible data category as it stands, due to the difficulties on identifying complete or broken colonies, however, as it was pointed out that the data are important, it was suggested to include some advice on

how to identify and measure them. In this regard, it was also suggested that a specific manual on methods should be prepared after the first year of data receptions with guidance based on comments provided by users.

23. Taking into account all these remarks, a new version² of the data entry tool has been produced.

Management measures

24. With regards to management measures, the list of those suggested by the draft proposal were presented and reviewed by the group. The participants agreed on giving a high level of effectiveness and of feasibility to **licensing system** linked to **annual quotas** as a means to control catches and effort on a regular basis.

25. Some participants questioned the feasibility of daily quotas, indicating they might increase operating costs to fishermen by limiting the daily catch and requiring more trips, while others outlined that a lack of daily quotas would render control inspections ineffective. Several countries have already incorporated daily quotas in their MPs as complimentary measure to enforce control on annual quotas; the option of having only daily quotas without an annual limit was not considered advisable by the group.

26. It was suggested that even if management plans based on size appear effective, a quota system could be considered as a complimentary management tool. However, at present not all fisheries dispose of data that would enable them to set reliable quotas based on stock assessment and sustainable yields. The group consequently decided to focus the discussion on technical measures to effectively address the control of size of harvested corals, since the Regional Management Plan as agreed previously in this session will (in its first phase) be based on size.

27. No objections were expressed against spatial and temporal restrictions for the control of fishing effort in addition to the number of licenses (e.g. number of fishing days/bottom dives durations), when the catches reach the precautionary or the limit levels once those will be established.

28. Some participants asked for guidance on the management plan regarding the linkage of decision control rules and management measures. As it stands, the RMP-RC leaves this at discretion of the countries, but the group was informed that the measures to be adopted by each country should be aligned with those discussed during the meeting and possibly try to prioritize following the ranking on feasibility and effectiveness as assessed by this group (see table in Appendix C).

Implementation and enforcement mechanisms

29. The draft RMP-RC states that Members are request to take measures in order to ensure that the provisions of the RMP-RC are covered under their national legislation. The implementation and rule-enforcement mechanisms of the RMP-RC should be defined through legislation and regulations at the national level taking into account the specificities of national legal frameworks as well as of economic, social, and cultural aspects. Participants agreed with indications provided by the draft plan.

Monitoring control and surveillance (MCS) systems before and during harvesting, at landing and after landing

30. The work developed in Sardinia on **Monitoring of the red coral harvesting in Sardinia by on-board scientific observers (Cannas *et al*)** was introduced. The presentation reported a case study in which observers were on board when ROVs are used for prospecting in Sardinia. Although preliminary, the results showed an alarming trend with 32% of the corals above the catch limit of 10 mm. Most corals were harvested at below 110 m depth (harvesting is prohibited from 0–80 m).

² Available at <https://gfcmsitestorage.blob.core.windows.net/contents/ReportingTools/GFCM-RedCoral-DataReportingSystem.zip>

31. The series of potential measures on MCS were presented in tabular format in order to facilitate the discussion and to rank them (high, medium, low) according to their effectiveness and feasibility. The outcomes of this discussion are presented in Appendix C.

32. Participants agreed on the effectiveness and feasibility of the following MCS measures: use of logbooks, designated ports with required facilities and trained staff, prior notification before landing and validation of logbooks on land.

33. Observers on board were recognised as an effective control tool, but concerns were raised on the logistical challenge of staffing sufficient boats for a fishing season, and also on the financing of observers.

34. The use of patrolling was seen as useful for enforcing management measures. For patrols and inspections, it was requested that standards and special training in tools and methods be provided in the future.

35. The implementation of tracking devices (such as VMS or other GPS positioning systems, subject to confidentiality of CPCs and GFCM secretariat) likewise received the agreement of the participants, as a means to monitor compliance with no take zones and fishing effort.

Traceability mechanisms

36. Commercial traceability mechanisms are used by some participant countries, and were seen as a tool with possible various benefits. On the one hand, they can **add value** to the product by guaranteeing its **geographical and legal origin**. However, it was not considered a priority of the group. Nevertheless, the examples of Sardinia and Spain were acknowledged as good practices models to be potentially followed in the future.

Reviewing system and timeframe

37. The participants discussed the proposal of a 3–5 years review time of the RMP, and suggested the first interval at **3 years**, after the first reception of the official data through the GFCM data entry tool.

Stakeholders' involvement

38. Stakeholders' involvement was seen by all participants as strongly needed when designing and implementing plans. It was recommended that all the resources be at disposal of all the actors for consultation.

39. One participant introduced the issue of co-management as a realistic solution for the many problems facing fisheries in general and in particular the red coral one, a fishery with old traditions and deep social implications. It was argued that co-management could be considered as a possible approach of red coral management in the future. Several participants felt that this issue was premature in the current context of the RMP.

Research needs

40. The participants acknowledged that the research needs specified during the GFCM red coral workshops in Alghero and Ajaccio in 2010 and 2011 still applied and should be pursued. It was pointed out that limited funding impedes the scientific studies that were specified. Specifically, the research topics are:

Demography

- Population density
- Colony growth rate assessment
- Population size structure
- Population reproductive structure and larval output

- Recruitment and mortality assessment (including infection by boring sponges)

Stock assessment

Methodologies for slow growing species and data-poor fisheries

Surveys at sea:

Large and small-scale bathymetric surveys and mapping of Mediterranean red coral populations through standardized methodologies

Population genetics

- Extending the study to all the geographical areas where red coral is present (including eastern and southern Mediterranean coasts)
- Developing new effective markers for DNA microsatellite analysis of different populations
- Genetic variability and connectivity assessment

Stock recovery and restoration

Development of restoration techniques.

Development of alternative deep harvesting

Evaluation of the effects of the use of remote operating vehicles (ROV) and submersibles for harvesting not only in red coral populations but also in the ecosystem.

ANY OTHER MATTERS

41. The presentation on **The opportunity of using the ROV for better management of *Corallium rubrum* and for the safety of workers (Ciliberto *et al*)** was introduced by Massimo Ciliberto. He stressed that in certain areas in the world, coral divers are nowadays forced to work at the limit of human capability to find harvestable coral. Not only accident risk, but also safety-at-work regulations were presented as arguments favoring ROV harvesting.

42. One participant commented that ROV harvesting could provide access to the pristine deeper banks that are considered as *refugia* (below SCUBA diving depth), considering that in shallow waters of certain areas red coral populations are near to depletion.

43. Other participants reported that, in some areas, this tool was currently being used at the same depth as SCUBA diving, and that it may allow for more selective prospection of the sites before diving for harvesting. However, these participants recalled that under current legislation ROVs authorized outside scientific programs were only ROVs without arms and only used as a prospection tool, not allowing, consequently, to collect corals under SCUBA diving depth. They also proposed to create, where necessary and if appropriate, sanctuaries, for instance under 200 m depth, in order to ensure that ROVs would not be used to target the deepest colonies.

44. Ensuing comments suggested the need to address the steps forward once the time limit of year 2015 for prospection studies will be reached. As stated in Recommendation 35/2011/2, once these studies have been finalized and made available to the scientific subsidiary bodies of the GFCM, the SAC could advise on the status of the stocks and on the impact and the advisability of using ROV for direct harvesting of red coral. To facilitate this goal for the SAC, it was suggested that a scientific dedicated workshop be organized once the studies are finalized and made available through the GFCM Secretariat. Terms of Reference for this workshop and estimated date of 2016 was suggested as presented in Appendix D.

45. The two works: **Connectivity and management of *Corallium rubrum* commercial banks (Abbiati *et al.*)** and **Demographic parameters of two populations of Red Coral (*Corallium rubrum* L. 1758) in the North Western Mediterranean (Bramanti *et al*)** were introduced as meeting documents and made available to the participants on the web site of the workshop.

CONCLUSIONS AND RECOMMENDATIONS

46. With regards the operational objectives proposed by the draft RMP-RC, participants agreed that on a first phase, management could be based on ensuring that the current legal **size** (with 10% of tolerance in weight for undersized colonies) be respected until the present situation of many data-poor fisheries would be overcome and official **yield** data allow to set up quotas.

47. The **data entry tool** presented by the Secretariat was well received by the participants, with some remarks to modify and improve the system, including incorporating a comments section for feedback from the first year of data entry (the deadline for the first submission was unofficially extended until the end of February 2014). It was recommended that indications for optional fields be included in the table for harvesting and that the table corresponding to biological information must be filled only if a research or sampling program is in place.

48. Regarding management measures to be adopted by members to control that the objectives of the plan (when adopted) are met, participants agreed that a **licensing system** and **annual catch levels (quotas)** were of high value and also feasible. Opinions differed on the effectiveness of complementing those with **daily** quotas.

49. With regards to monitoring, control and surveillance measures, participants agreed on the effectiveness and feasibility of the use of **logbooks, designated ports** with required facilities and as much as possible trained staff, **prior notification before landing**, and **validation** of logbooks on land, **tracking devices**, as well as **patrols and inspections**. **Observers** on board were recognized as an effective tool, but concerns were raised on logistical and financial constraints.

50. **Commercial traceability mechanisms** are used by some participant countries, and their potential benefits were recognized, although they were not considered a priority since other actions such as data collection and stock assessment were seen as more urgent. The examples of Sardinia and Spain were agreed to be taken as good practices to be potentially used as models for the future.

51. The participants agreed with the proposal of 3–5 years review time of the RMP, and suggested the first interval at **3 years**, after the first reception of the official data through the GFCM data entry tool.

52. **Stakeholder involvement** was seen by all participants as **strongly needed** when designing and implementing plans. All the resources need to be at disposal for consultation with all the actors.

53. The participants acknowledged that the research needs specified during the GFCM red coral workshops in Alghero and Ajaccio in 2010 and 2011 **still apply** and in this regard, in coherence with the GFCM Guidelines for Management Plans, they all agreed that GFCM and its Members should join efforts to improve knowledge on the biology and on fisheries of red coral including, as adequate, entering into cooperative arrangements with other appropriate international frameworks, and promote participatory programmes with relevant stakeholders.

54. Discussions on ROV concluded that, in view of the SAC advice expected after 2015, a **dedicated technical workshop on ROV should be conducted**.

ENDORSEMENT OF CONCLUSIONS AND CLOSURE OF THE MEETING

55. The meeting agreed on the conclusions and decided to finalize the report and revise it by e-mail within the next 7 days.

56. The meeting was closed and the GFCM Secretariat reiterated its thanks to the EC Directorate General of Maritime Affairs and Fisheries for the hospitality and the excellent support provided in the organization of the meeting.

Agenda

TUESDAY 21 JANUARY

Morning, 09:30 – 13:00

1. **Opening and arrangements of the meeting**
2. **Current management measures at national level** (*Overview of existing information gathered during previous workshops, updated and if needed amended by the national experts*)
3. **Draft Regional Management Plan for red coral (RMP-RC)** (*by the Secretariat*)

Afternoon, 14:30 – 17:30

4. **Discussion on the fundamental elements of the draft plan**
 - 4.1. Operational objectives
 - 4.2. Reference Points
 - 4.3. Decision Rules
 - 4.4. Data needs
 - **The Schaeffer production model for the setting of operational objectives: an example from Sardinia** (Follesa *et al*)
 - **Conservation and management of the high valuable Mediterranean red coral-the deep dwelling commercial populations** (Santangelo *et al.*)
 - 4.5. Management measures

WEDNESDAY 22 JANUARY

Morning, 09:30 – 13:00

4. **Discussion on the fundamental elements of the draft plan (cont')**
 - 4.6. Implementation and enforcement mechanisms
 - 4.7. Monitoring Control and Surveillance systems (before, during harvesting, at landing and after landing)
 - **Monitoring of the red coral harvesting in Sardinia by on-board scientific observers** (Cannas *et al.*)
 - 4.8. Traceability mechanisms
 - 4.9. Reviewing system and timeframe
 - 4.10. Stakeholders involvement
 - 4.11. Research needs
5. **Any other matter**
 - **The opportunity of using the ROV for better management of *Corallium rubrum* and for the safety of workers** (Ciliberto *et al*)
 - **Connectivity and management of *Corallium rubrum* commercial banks** (Abbiati *et al.*)
 - **Demographic parameters of two populations of Red Coral (*Corallium rubrum* L. 1758) in the North Western Mediterranean** (Bramantiet *al*)

Afternoon, 15:30 – 18:00

- 6. Conclusions and recommendations**
- 4. Endorsement of conclusions and closure of the meeting**

List of participants

Marco ABBIATI

University of Bologna
Via S Alberto 163
48123 Ravenna
E-mail: marco.abbiati@unibo.it

Oxana BARTELS

EU Commission
200 Rue de la Loi
1049 Brussels, Belgium
E-mail: Oxana.Bartels@ec.europa.eu

Encarnación BENITO REVUELTA

SG Caladero Nacional, Aguas
Comunitarias y Acuicultura
DG Recursos Pesqueros y Acuicultura
Secretaría General de Pesca
Ministerio de Agricultura, Alimentación y
Medio Ambiente
C/ Velázquez 144
28071 Madrid, Spain
E-mail: ebenitor@magrama.es

Mauro BERTELLETTI

Dirigente reggente
Direzione generale della pesca marittima e
dell'acquacoltura,
Ministero delle politiche agricole
alimentari e forestali
Viale dell'Arte 16
00144 Rome, Italy
E-mail: m.bertelletti@mpaaf.gov.it

Mehrez BESTA

Directeur de l'Exploitation
Direction Générale de la Pêche et de
l'Aquaculture Ministère de l'Agriculture
30 Rue Alain Savary 1002
E-mail: mehrezbesta@gmail.com

Lorenzo BRAMANTI

LECOB-UPMC
Observatoire Oceanologique
18 Avenue de Fontaulè
66650 Banyuls sur Mer
France
E-mail: philebo@gmail.com

Rita CANNAS

University of Cagliari
Dipartimento di Biologia
Animale ed Ecologia
Via T. Fiorelli 1
09126 Cagliari, Italy
E-mail: rcannas@unica.it

Marina CAMPOLMI

Regione autonoma della Sardegna
(Sardinian Regional Administration)
via pessagno 4
09126 Cagliari, Italy
E-mail: mcampolmi@regione.sardegna.it

Salvatore Carlo CARIA

A.I.S.C.
Associazione Italiana Sommozzatori
Corallari
via Nulauro s.n.c.
Alghero, Italy
E-mail: salvatore.carlocaria@tiscali.it

Angelo CAU

University of Cagliari
Dipartimento di Biologia
Animale ed Ecologia
Via T. Fiorelli 1
09126 Cagliari, Italy
E-mail: cau@unica.it

Alessandro CAU
 University of Cagliari
 Dipartimento di Biologia
 Animale ed Ecologia
 Via T. Fiorelli 1
 09126 Cagliari, Italy
 E-mail: alessandrocau@unica.it

Massimo CILIBERTO
 A.I.S.C.
 Associazione Italiana
 Sommozzatori Corallari
 via Monte Grappa 7
 07100 Sassari, Italy
 E-mail: cilibertomassimo@gmail.com

Claude DI DOMENICO
 French delagation/Advisor
 France
 E-mail: claudedidomenico@gmail.com

Maria Cristina FOLLESA
 University of Cagliari
 Dipartimento di Biologia
 Animale ed Ecologia
 Via T. Fiorelli 1
 09126 Cagliari, Italy
 E-mail: follesac@unica.it

Jean Phillippe GIORDANO
 French delagation/Advisor
 3 place Montepagano
 20169 Bonifacio, France
 E-mail: info@corailrouge.com

Milena KRASIC
 Ministry of Agriculture and Rural
 Development
 Rimskitrg no.46
 81000 Podgorica, Montenegro
 E-mail: milena.krasic@mpr.gov.me

Barbara LALIOTOU
 Head of Unit of Small Scale Fisheries
 Department of Marine Fisheries
 Ministry of Rural Development & Food
 150, Sygrou Ave.,
 17671 Athens, Greece
 E-mail: syg100@minagric.gr

Altan LÖK
 Fisheries Faculty
 Ege University
 Bornova 35100 Izmir, Turkey
 E-mail: altan.lok@ege.edu.tr

Anna MANOUSSOPOULOU
 EU Commission
 200 Rue de la Loi
 1049 Brussels, Belgium
 E-mail: anna.manoussopoulou@ec.europa.eu

Philippe MARAVAL
 Chargé de mission Affaires Internationales
 Bureau des Affaires Européennes et
 Internationales
 Direction des Pêches Maritimes et de
 l'Aquaculture
 Ministère de l'Ecologie, du Développement
 Durable et de la Mer
 France
 E-mail: Philippe.MARAVAL@developpement-durable.gouv.fr

Mirko MARCOLIN
 EU Commission
 200 Rue de la Loi
 1049 Brussels, Belgium
 E-mail: mirko.marcolin@ec.europa.eu

Abdellah MOUSTATIR
 Chef de la Division des structures de la
 Pêche, Chef de la Délégation
 Ministère de l'agriculture et de la pêche
 Maritime, Morocco
 E-mail: moustatir@mpm.gov.ma

Alain NORRO
 French delagation/Advisor
 France
 E-mail: alain.norro@skynet.be

Marco PANI
 IWMC-World Conservation Trust
 Piazza dei Mercanti 2
 00153 Rome, Italy
 E-mail: pani.marco@gmail.com

Jacques SACCHI

French delagation/Advisor
France
E-mail: jsacchi@hotmail.fr

Giovanni SANTANGELO

University of Pisa
Via Volta 6
56126 Pisa, Italy
E-mail: gsantangelo@biologia.unipi.it

Olivier TRUBERT

French delagation/Advisor
France
E-mail: olivier.trub@gmail.com

Abdel-Nasser ZAÏR

Inspecteur Général
Ministère de la pêche et des ressources
halieutiques
Route des quatre canons
Alger, Algeria
E-mail: djamel_zair@yahoo.fr

Chair**Georgios TSOUNIS**

Leibniz Center for Tropical Marine
Ecology (ZMT) GmbH
Fahrenheitstrasse 6
D - 28359 Bremen, Germany
E-mail: georgios.tsounis@uni-bremen.de

GFCM Secretariat**PilarHERNÁNDEZ**

Information Management Officer
Food and Agriculture Organization of the
UN (FAO)
General Fisheries Commission for the
Mediterranean (GFCM)
Via Vittoria Colonna 1
00193 Rome, Italy
Ph: +39 06 57054617
E-mail: pilar.hernandez@fao.org

Appendix C

Assessment of feasibility and effectiveness of Monitoring Control and Surveillance measures

MCS potential measures	Proposals by National representatives	Rank effectiveness	Rank feasibility	Purpose
Logbook	Logbook (all)	High	High	To register the catches and related data by dive on a daily basis
Designation of ports	Designation of ports (all)	High	High	Provide the designated ports with the necessary facilities and personnel
Observers on board	Scientific observers on board (Italy)	High	Low	To control size, transshipment and sales prior to landing
Patrolling unit		High	Medium	To control depth, licenses, gear, size
	Advance warning (France)	High	High	A phone call to the port when the vessel is approaching
Certification of logbook at landing sites		High	High	Logbook must be certified at landing to verify it contents with the actual landed catches.
	Tracking device on board (EU)	High	Medium	To control that harvest takes place only on appropriate sites
	Use of videos of authorized underwater devices (France)	Medium	Low	Inspection of videos and images taken to better locate the colonies and to assess the effects of the fishing.
Traceability mechanisms	Sales note with the details of the seller, the buyer and a code for each lot sold. (Italy, Spain)	Medium	Medium	To control the origin of corals, and address poaching. Certified coral from legal fisheries might have added value.

Draft terms of reference
Workshop on the use of ROV after 2015 in the context of GFCM

1. State of the art of ROV technology
2. Practicability of ROV for red coral harvesting
3. Socioeconomic analysis
4. Management and conservation considerations in the context of ROV for harvesting of red coral.
5. Adaptive framework for the use of ROV.