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

GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN

SCIENTIFIC ADVISORY COMMITTEE (SAC)

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CONCLUSIONS AND RECOMMENDATIONS OF THE FOUR SAC SUB-COMMITTEES
St. George's Bay, Malta, 29 November - 2 December 2010

INTRODUCTION

1. This document summarizes the main conclusions and recommendations of the four Sub-Committees of the Scientific Advisory Committee (SAC) as reflected in their reports, respectively referenced: GFCM:SAC13/2011/Inf.5, 6, 7 and 8. It also takes into consideration selected issues raised by the Coordinating Meeting of Sub-Committees (CMSC), as provided in document GFCM:SAC13/2011/Inf.10. The Sub-Committees met simultaneously in St George's Bay, Malta, from 29th November to 2nd December 2010 and the Coordinating Meeting met on 3rd December.

SUB-COMMITTEE ON STOCK ASSESSMENT (SCSA)

2. The Working Group on Demersal species took place in Istanbul, Turkey from 18 to 23 October and on Small-Pelagic Species in Campobello di Mazara, Italy from 1 to 6 November 2010.

During its 11th Session, the SCSA reviewed 32 technical papers on demersal species and 11 technical papers on small pelagics. Out of those 43 stocks studied, a total of 34 were considered to be complete assessments and validated by the Sub-Committee (SC). The total coverage was 14 Geographical SubAreas (GSAs) for the demersal species and 7 GSAs for small pelagic species. The species studied were: *Merluccius merluccius, Mullus barbatus, Mullus surmuletus, Nephrops norvegicus, Parapenaeus longirostris, Boops boops, Pagellus bogaraveo, Solea solea, Spicara smaris, Pagellus erythrinus, Aristeus antennatus, Corallium rubrum, Engraulis encrasicolus, Sardina pilchardus* and *Trachurus trachurus.*

- 32 assessments and 2 related works were presented and discussed by the Working Group on Demersal species held in Istanbul, Turkey (18-23 October 2010). The assessments covered 14 GSAs and concerned 12 species. Two of the stocks assessed were shared stocks, namely *P. bogaraveo* on GSA01, 03, and *P. longirostris* on GSAs 12,13,14,15 and 16, and their assessment was done within specific activities under the framework of the regional Projects Cpemed II and MedSudMed respectively. 23 of them were validated and 9 were considered preliminary and were not reviewed by the SCSA and are not included in table 1. All the methods and results by stock were discussed and scrutinized by the participants and the advice approved in plenary sessions. Two related documents one on *Corallium rubrum* in GSA6 and one on by-catch species of *N. norvegicus* fishery in GSA9.

- 11 assessments and 2 related works were presented and discussed by the Working Group on Small pelagics held in Campobello di Mazara, Italy, from 1 to 6 November 2010. The assessments covered 7GSAs and concerned 2 Species: sardine and anchovy plus a preliminary related work of horse mackerel in the Marmara Sea. Only 2 of them were validated for management advice and 9 were considered preliminary. An overview of all the stock assessments performed during the small pelagics working group, and a summary of the resulting scientific advice is provided in table 2. The second related work was the biomass estimate of Anchovy in GSA18 by two direct methods: acoustic survey and DEPM that can not be considered an assessment as such but the WG acknowledged its value as the result of collaboration of two countries within the framework of AdriaMed Regional Project.

3. The detailed description of the fishery, status and abundance of concerned stock, information source, exploitation rate and related analysis for each assessment document are available in the SCSA (GFCM:SAC13/2011/Inf.8) and Working Groups reports (GFCM:SAC13/2011/Inf.18 and Inf.21) . Management advice for those assessments which were endorsed by the Sub-Committee are summarized by GSA concerned in tables 1 and 2 below.

Table 1 Management advice for demersal species

GSA	Species	Stock status	WG Management advice	WG comments	SC comments
GSA 3 (southern Alboran sea)	*Pagellus bogaraveo*	**Over-exploited**; current F (0.40) higher than F0.1 (0.18) and Fmax (0.37)	**Decrease the fishing effort**. Adopt the same management measure in GSA 03 and GSA 01. Improve the sampling standardisation. Maintain the joint assessment.	Improve the biological sampling and estimate the importance of the catches of juveniles that occur in more shallow areas by trawlers in order to improve the assessment in the case such removal be assessed as not negligible. The WG endorsed the assessment and recommendations.	No further comments. Endorsed
	Parapenaeus longirostris	**Over-exploited**; Fcurr/ $F_{0.1}$ = 392% F curr/ F_{MSY} =353%	It was recommended to **decrease the fishing mortality by 60-80%.** The abundance indices observed during surveys indicate a decrease of this resource	The WG recommend extending the assessment of the *Parapenaeus* stock including the data from other adjacent areas (Spanish and Algerian areas). The WG endorses the assessment and the related recommendations	No further comments. Endorsed
	Boops boops	**Over-exploited**; current F (0.90) higher than F0.1(0.61) and Fmax (0.75)	**Reduce the fishing mortality** and control the trawling ban in coastal water.	No sign of depletion is evident. The fishing mortality can be reduced limiting the moving of trawlers from the Atlantic to the Mediterranean. The WG endorses the assessment and the related recommendations	No further comments. Endorsed
	Mullus barbatus	**Over-exploited**; current F (0.68) higher than F0.1(0.55) and Fmax (0.56)	**Reduce the fishing mortality** and control the trawling ban in coastal water.	No sign of depletion is evident. The fishing mortality can be reduced limiting the moving of trawlers from the Atlantic to the Mediterranean. The WG endorses the assessment and the related recommendations	No further comments. Endorsed

GSA 05 (Balearic islands)	*Merlucccius merluccius*	**Over-exploited**; current F (0.85) higher than F0.1(0.20) and Fmax (0.31)	**Reduce fishing mortalities by 30 to 50%** trough reducing the effort activity and improving the selection pattern of the fishery.	Explore the parameterisation of XSA (the contribution of each tuning fleet in the model). and run sensitivity analysis on its effects. The WG endorses the assessment and the related recommendations.	No further comments. Endorsed
	Mullus surmuletus	**Over-exploited**; current F (0.60) higher than F0.1 (0.38) and lower than Fmax (0.74)	**Reduce fishing mortalities by 30 to 50%** trough reducing the effort activity and improving the selection pattern of the fishery.	The WG endorses the assessment and the related recommendations.	No further comments. Endorsed
	Mullus barbatus	**Over-exploited**; current F (0.82) higher than F0.1(0.33) and Fmax (0.53)	**Reduce fishing mortalities by 40 to 60%** trough reducing the effort activity and improving the selection pattern of the fishery.	Explore the parameterisation of XSA (the contribution of each tuning fleet in the model). The WG group noticed that while SSB appears increasing, recruitment time series suggest an increasing trend. The WG suggest performing sensitivity tests for defining the influence of input biological parameters in the results. The WG endorses the assessment and the related recommendations.	No further comments. Endorsed
	Nephrops norvegicus	**Over-exploited**; current F (0.45) higher than F0.1 (0.30) and lower than Fmax (0.63)	**Decrease fishing mortality by 20-30%** by: - Reducing effort, both in capacity and/or activity - Improving the selection pattern of the fishery - Implementing area closures for fishing	Perform a sensitivity analysis. The WG endorses the assessment and the related recommendations	No further comments. Endorsed
	Aristeus antennatus	**Over-exploited**; current F (0.62) higher than F0.1	**Reduce fishing mortalities by 30 to 50%** trough reducing	Evaluate the effect of effect of biological	No further comments. Endorsed

		(0.33) and lower than Fmax (0.76)	the effort activity and improving the selection pattern of the fishery. Implementing area closures for fishing in the nursery areas during the recruitment period.	parameters running XSA with sex combined data. Explore the parameterisation of XSA (the contribution of each tuning fleet in the model). The WG endorses the assessment and the related recommendations	
	Parapenaeus longirostris	**Over-exploited**	The problems found with the residuals and the retrospective analysis makes not possible to provide a full management advice.	The WG agrees that the stock is overfished but some uncertain do not allow to suggest an available value to reduce the actual fishing mortality. The WG endorses the assessment as a source of general information's on the stock.	The assessment must be considered as a rough estimation of the stock status to be verified.
GSA 06 (northern part of northern Spain)	*Merluccius merluccius*	**Over-exploited**; current F (1.70) higher than F0.1(0.60)	**Reduce growth overfishing through**: - Reduce the effort of trawl. - Improve the fishing pattern of the trawl fleets. To avoid recruitment overfishing: - **Reduce effort in trawl 70%** - Especial surveillance in the use of 40 mm square mesh size in the cod end in trawl gears. - Encourage studies to allocate area closures to fishing (Fishing Reserves).	The stock show dangerous signals of recruitment overexploitation due to the decreasing trend in recruitment and very low levels of the spawning stock. The WG endorses the assessment and the related recommendations	No further comments. Endorsed
	Mullus barbatus	**Over-exploited**; current F (0.76) higher than F0.1 (0.39)	**Decrease the fishing effort 70%.** More effective control in shelf areas above 50 m depth to reduce the catch of small individuals under the minimum legal size. The use of the 40 mm square mesh in the cod-end should improve trawl exploitation pattern	Co-occurrence of SSB increasing and recruitment decreasing. The WG endorses the assessment and the related recommendations.	No further comments. Endorsed

			and Y/R by 24%, but a close supervision of the observance of this measure is needed.		
	Parapenaeus longirostris	**Over-exploited**; current F (1.37) higher than F0.1(0.30) and lower than Fmax (2.73)	**Reduce growth overfishing:** **- Reduce the effort of trawl by 70%.** - Improve the fishing pattern of the trawl.	Since there are some evidences of synchronous oscillation of abundance of the species in the western Mediterranean, environmental factors (e.g. water temperature) are thought can notably affect the stock dynamics. The WG endorses the assessment and the related recommendations.	No further comments. Endorsed
GSA 07 (Gulf of Lions)	*Merluccius merluccius*	**Over-exploited**; current F (0.87) higher than F0.1(0.20) and Fmax (0.29)	**Reduce fishing mortality by 60% to 70%** to reach the Fmsy proxy F0.1. To reduce growth overfishing: - Improve the fishing pattern of the trawl - close nursery areas at least temporally - Reduce the effort of trawl, from reducing time at sea, number of fishing boats, engine power, Bollard pull and/or trawl size To avoid recruitment overfishing: - Reduce the effort of longline and gillnets in order to increase (or at least maintain) the SSB. - Establish temporal closures for longline and gillnet during the period of maximum spawning	The trend of the SSB does not show any risk of stock depletion or collapse. The parameterization of the XSA model may have an impact on the results obtained. To identify the extension of such decisions, further work must be done to explore different parameterizations of the model and run sensitivity analysis on its effects. The WG endorses the assessment and the related recommendations.	No further comments. Endorsed

	Mullus barbatus	Slightly **over exploited**	Current **F has to be reduced by 30-40%** to reach F0.1.	The WG endorsed the assessment and recommendations	Since the current F (0.7) is higher than F0.1 (0.4) and Fmax (0.5), the SC recommends to not use the attribute "slightly" in identifying the stock status. Endorsed
GSA 09 (Ligurian and north Tirrenian)	*Merluccius merluccius*	**Over-exploited**; current F (1.40) higher than F0.1 (0.22) and Fmax (0.35)	The stock appears to be highly overexploited with a need of **F reduction of about 40-80%.**The current SSB is estimated as 5 and 10% of the virgin SSB, nevertheless, the stock productivity does not appear to be impaired and able to still produce relatively large year classes.	The group noticed a decreasing trend of the SSB for both assessments performed with SURBA on 2 different surveys (MEDITS and GRUND). The WG endorses the assessment and the related recommendations.	No further comments. Endorsed
	Mullus barbatus	**Over-exploited**; current F (0.73) higher than FMSY (0.64)	**A reduction of about 10%** is considered necessary in order to reach the Fmsy level.	The WG endorsed the assessment and recommendations	No further comments. Endorsed
	Parapenaeus longirostris	**Fully -exploited**	**Not to increase the fishing mortality**	This stock could be strongly driven by environmental and ecological factors (*e.g.* water temperature, predatory release effect) that can make difficult to evaluate the effect of fishing on the stock. The WG endorses the assessment and the related recommendations but notes that only the reference points computed by VIT should be considered for management.	No further comments. Endorsed

GSAs 12,13,14, 15&16 (Strait of Sicily)	*Parapenaeus longirostris*	**Over-exploited**; current F (1.13) higher than F0.1 (0.90) and lower than Fmax (1.23)	**A reduction of about 20%** is considered necessary in order to reach the F0.1 level. In addition the exploitation pattern of the fishery should be improved. A protection of the stable nurseries on the Adventure and Malta Banks in the Strait of Sicily is advised	A change in M and k has pronounced effect on Y/R when the variation was applied in opposite directions. On the other hand B/R and SSB/R are not strongly affected when the change is in the same direction. Alternative methods such as global production methods and trawl survey based approach should be used in the future to make the assessment more robust. The WG endorses the assessment and the related recommendations	No further comments. Endorsed
GSA 17	*Solea solea*	**Over-exploited**; current F (0.61) higher than F0.1 (0.29) and Fmax (0.42)	**A reduction of F of 50-80%,** especially by rapido trawling, would be recommended. A two–months closure for rapido trawling inside 11 km off-shore along the Italian coast, after the biological fishing ban (August), would be advisable to reduce the portion of juvenile in the catches. The safeguard of spawning area is also advised	Include in the future assessments biological samples data from the eastern fishery as well as to extend the rapido trawl survey inside the 12 nm from the Croatian coast, as was performed in 2005 and 2006. Such requirements could be attained in the framework of ADRIAMED regional project.	No further comments. Endorsed
GSA 26 (South Levant)	*Solea solea*	**Over-exploited**; current F (0.66) higher than F0.1(0.41) and lower than Fmax (0.81)	**Reduce fishing mortality by about 40-60%** to achieve F0.1. Improve the trawl selectivity. Identify and protect the nursery grounds. Improve the fishery data collection system.	As the assessment was done at first using three years 2006-2008 and it was found that the length composition of year 2008 is greatly different from the two others, the assessment was redone using the mean number of years 2006-2007. The WG endorses the assessment and the related recommendations	No further comments. Endorsed

	Boops boops	**Over-exploited**; current F (1.09) higher than F0.1 (0.59) and Fmax (0.94)	**Reduce the fishing mortality by 40-60%**	The WG endorses the assessment and the related recommendations	No further comments. Endorsed
	Pagellus erytrinus	**Over-exploited**; current F (0.65) higher than F0.1 (0.34) and Fmax (0.57)	**Reduce the fishing mortality by 40-60%.** Identify and protect nurseries	The WG endorsed the assessment and recommendations.	No further comments. Endorsed

Table 2 Management advice for small pelagic species

GSA	Species	Stock status	WG Management advice	WG comments	SC comments
GSA 01 (Alboran Sea)	*Engraulis encrasicolus*	**Moderately exploited** Sustainable fisheries	**Not increase the fishing effort.** The management of anchovy fisheries needs to account the multi-species effects, mainly the interaction with sardine.	The WG considers the analytical assessment as provisional. The WG endorsed the assessment and recommendations.	No further comments. Endorsed
	Sardina pilchardus	**Fully exploited** Sustainable	**Not increase the fishing effort.** The management of sardine fisheries needs to account the multi-species effects, mainly the interaction with anchovy.	The WG considers the analytical assessment as provisional. The WG endorsed the assessment and recommendations.	No further comments. Endorsed
GSA 3 (southern Alboran sea)	*Sardina pilchardus*	**full exploitation**; current F (0.6) higher than F0.1/Fc=0.62 and lower than Fmax/Fc=1.86 Uncertain biomass	- **Maintain the current fishing effort;** - Reduce the mortality of fishing on the spawning fish - Introduce seasonal closure during January which coincides with the peak of the spawning; - Prohibit fishing during May near Short-nap close Kebdana to preserve the young fish.	The WG endorses the assessment and the related recommendations.	No further comments. Endorsed
GSA 06 (northern part of northern Spain)	*Engraulis encrasicolus*	**The stock abundance is considered as low**, while the exploitation rate is uncertain.	**Avoid further reduction in SSB**	The WG considers the analytical assessment as provisional. The WG endorsed the assessment and recommendations	No further comments. Endorsed
	Sardina pilchardus	**Overexploited** The stock has declined over many years, partly due to reduced recruitment and partly to poor survival of the recruits. Most likely, the stock has	**A substantial reduction in exploitation is advised.**	The WG considers the analytical assessment as provisional. The WG endorsed the assessment and recommendations the related recommendations.	No further comments. Endorsed

		been increasingly overexploited in recent years			
GSA 07 (Gulf of Lions)	*Engraulis encrasicolus*	**Fully exploited -** moderate harvest ratio. Low biomass	- **Reduce fishing effort** on anchovy in the Gulf of Lion - Respect the European regulation on minimum length size of catch (> 9 cm, UE 1976/2006) - Consider interactions with sardine fisheries.	The WG endorses the assessment and the related recommendations.	No further comments. Endorsed
	Sardina pilchardus	**Moderately exploited** Severely reduced production capacity	- **Strongly reduce fishing effort** on sardine in the Gulf of Lion; - Formalize and establish a protocol of "sentinel" activity for fishermen, and produce monthly spatio-temporal observations to describe the evolution of the system, - Respect the European regulation on minimum length size of catch (11cm, UE 1976/2006. - Consider interactions with anchovy fisheries.	The WG endorsed the assessment and recommendations	No further comments. Endorsed
GSA 16 (Strait of Sicily)	*Engraulis encrasicoluss*	Exploitation rate (ratio between total landings and biomass estimates)**: high fishing mortality.** Stock abundance (acoustic biomass estimate): **very low abundance**.	- **Not increase the fishing effort;** -Assess the impact of fry fishery may have. - Not extend fry sardine fishery after March to avoid additional mortality on juvenile anchovy.	Negative effects on these populations could result from pressure of other fishing gears on pre-juvenile stages (locally known as "bianchetto" or "neonata"). The WG endorses the assessment and the related recommendations	Since the stock is characterised by both high exploitation rate and low biomass the SC recommends to change "not increase the fishing effort" into "decrease the fishing effort". Endorsed with this modification

	Sardina pilchardus	Exploitation rate (ratio between total landings and biomass estimates): **moderate fishing mortality.** Stock abundance (acoustic biomass estimate): **low/intermediate abundance.**	**- Not increase the fishing effort;** -Assess the impact of fry fishery. As the impact of fry fishery on this population is not known, a proper quantification of the catches in the fry fishery is mandatory.	Over the last four years the population appears to be stable though at a relatively low level. However, taking into account the moderate exploitation rates experienced, results would suggest the stock being able to tolerate the current level of exploitation.	No further comments. Endorsed
GSA 17	*Engraulis encrasicolus*	The stock at the present level of biomass can be considered as **moderately exploited**	- **Not increase the fishing effort**. - Consider the interactions with sardine fisheries.	In the present assessment, important improvements were made regarding the echo-survey data used as tuning index for VPA: in particular, for the first time, biological data from the western Adriatic were used to split into age classes only the abundance estimated by the western echo-survey, while biological data from the eastern Adriatic were applied to the eastern echo-survey abundance.	No further comments. Endorsed

	Sardina pilchardus	The stock at the present level of biomass can be considered as **moderately exploited**	**- Not increase the fishing effort.** - Consider the interactions with anchovy fisheries.	In the present assessment, important improvements were made regarding the echo-survey data used as tuning index for VPA: in particular, for the first time, biological data from the western Adriatic were used to split into age classes only the abundance estimated by the western echo-survey, while biological data from the eastern Adriatic were applied to the eastern echo-survey abundance.	No further comments. Endorsed

4. The SC drew up and agreed on the following recommendations.

- On the use of **reference points for stock assessment purposes**, differences in adopting a proper assessment framework for demersal and small pelagics were evidenced.
  - Due the availability of yield and biomass per recruit analyses for most of **demersal** species, the adoption of BRP based on fisheries mortality and the shape of Y/R curve was of common acceptance. $\mathbf{F_{max}}$ was selected as **Limit Reference Point**, and the SC agreed to use $\mathbf{F_{0.1}}$ as technical **Target Reference Point**.
  - Conversely, the absence of an agreed assessment framework based on the use of BRP in **small pelagic** species was evidenced. This is mainly due to the limit to use classical analytic approaches and the strong effects of environmental factor on their dynamics. The SC suggested to explore, in the next small pelagics WG, a multi-criterion empirical approach based on **standing stock** as stock status indicator, the **harvest ratio** (catch/biomass from survey) as fishing impact indicator, and some **indicators of environmental stress** (SST, Chlorophyll, condition factor,…).
- Concerning the development of the task 1.5, the SC recommended the creation of a specific **task 2** containing data on **biological characteristic (length, age, sex, maturity) of catch**, both in terms of landing and discard, by species and gear for each Operational Unit and for given fishing periods. This new task 2 should have the possibility to exchange data and information with the task1, the database on biological parameters and the SAFs. The elaboration on the data collection, data submission and data processing mechanisms for the connection of the three sources of information should be the object of a Transversal Workshop with SCSI after the SCSA have identified the required information to be provided.

- Due to the increasing use of **Fishery Restricted Areas** in management and conservation framework, the SC recommended to investigate the role of **spatial based approach to fishery management**. Since these tools have ecological, economic and social effects the SC suggested strong link with SCMEE and SCESS to tackle this issue.
- Within the framework of the **Mid Term Working Program for Elasmobranch** species approved during the 12th meeting of SAC in 2009, the SCSA, in agreement with the SCMEE, proposed to hold a workshop, for their stock assessment (inside the Demersals WG week or depending of the availability of data and of the interest, in a specific one in other dates). Starting by the following species: *Raja clavata, Raja miraletus, Raja asterias* and *Scyliorhinus canicula* for which information from trawl surveys is available and ready to be assessed next year 2011. The methods to be used are those so called "less data demanding": *i.e.*; Y/R method of Beverton and Holt models, Composite Surplus Production Models, Non Equilibrium Biomass Dynamic Models for single species and Susceptibility Analysis (PSA) for fishing assemblages.
- Some mitigation measures aimed at reducing **bycatch** of unwanted species of conservation concern such as turtles, cetaceans and birds are highlighted.
  - The adoption of circular hook seems to be appropriate for pelagic
  - Grid and separator for demersals (according to the Selectivity and bycatch WS)
  - Protection of nurseries is underlined as a general tool for all the species.
- To complete the data gathering on **European eel** and to assemble the scattered information in the countries and create the setting up of a network of Mediterranean experts on eel fisheries in collaboration with the working group on Eel management of EIFAC/ICES.

SUB-COMMITTEE ON STATISTICS AND INFORMATION (SCSI)

5. The SCSI drew up and agreed on the following recommendations:

- The adoption of a single fleet submission (fleet register) should be considered in order to reduce the number of submissions of fleet-based datasets whilst ensuring that all data fields requested by all Recommendations are included.
- The Secretariat should coordinate efforts and explore the possibility to set up a Permanent Statistical Assistance Entity within the GFCM Secretariat to ensure continuity of assistance to the countries and to strengthen the capacity of GFCM in handling the numerous data exchange processes.
- In compliance with Recommendation GFCM/33/2009/3, the reporting procedure for the forthcoming Task 1 submission should be as follows:
  - The full task 1 datafile for 2008 to be submitted by January 2011. In the case that Task 1 data (Task 1.1, 1.2 and 1.4) have already been submitted in 2010, this datafile must be completed with new information and sent as a whole to the Secretariat.

- 2009 data (Full Task 1) to be submitted by May 2011.
- Member countries are encouraged to send 2010 data if already available

- For the purposes of Task 1 data submission, total values for discards should be reported whilst catch quantities of unwanted species of conservation concern should be reported by species.
- The SCSA should identify the biological parameters for which data should be submitted by species and gear for each Operational Unit and for given fishing periods. Following this, a transversal workshop could be held to elaborate on the data collection, data submission and data processing mechanisms either within the current Task 1 framework or through the establishment of a Task 2 structure.
- The definitions of the parameters related to the reporting of fishing effort through the Task 1 data entry software and data exchange protocols should be fine tuned to reflect the technical issues raised by the SCSI.
- A national focal point for Task 1 data submission should be formally nominated by GFCM Members.
- The current Task 1 reference list for "Group of Target Species" should be modified, taking into account the ISCAAP divisions and groups of species, in the data exchange protocol.
- The Task 1 statistical bulletin and other general statistical outputs should be available to the public by default. The SAC should discuss the options of the modality of data access presented by the SCSI.
- The trial period for the GSA-compatible STATLANT 37A form should continue until a data flow (Task 1) can replace it without losing the historical series.
- The SAC should discuss whether there is sufficient evidence, from the studies presented during the SCSI, to set up a weight threshold in relation to catch reporting through logbooks.

SUB-COMMITTEE ON ECONOMICS AND SOCIAL SCIENCES (SCESS)

6. The SCESS drew up and agreed on the following recommendations:

- Initiatives such as the Masters programme on "Fisheries Economics and Management", conducted in the past, could help increase expertise in the field in the GFCM Area and consequently strengthen active participation in SCESS activities and meetings.
- The definitions related to recreational fisheries proposed by the SCESS should be considered by SAC for adoption:

  - *Recreational fishing*: *Fishing activities exploiting marine living aquatic resources for leisure or sport purposes from which it is prohibited to sell or trade the catches obtained.*

  - Underwater fishing: Recreational fishing activity practiced as a sport or for leisure by snorkelling techniques without the help of mechanical devices (e.g. scooter);

  - A definition of "Pesca turismo" should also be included in the GFCM Glossary

- It is important to develop a common and harmonised scientific monitoring protocol for recreational fisheries. A regional study could be carried out to obtain an overview of recreational fishing activities the results of which could be used as a basis for the setting up of the monitoring framework.
- When appropriate, a licensing system should be considered for the regulation of recreational fisheries in the GFCM area.
- A Code of Practice / Technical Guidelines for the development, promotion and management of recreational fisheries in the GFCM area should be drawn up.
- Experimental case studies, in relation to the implementation of the minimum mesh size in codends, should be undertaken to assess effects on landing value, landing weight, discard weight and cost of fishing per vessel day.
- Focus should be directed towards socio-economic analysis of Mediterranean fleet segments for which economic data will be available as from 2011 through the GFCM Task 1.3 requirements.
- The subject of eco-labelling and its impact on the economic value of fisheries products in the GFCM Area should be addressed.

SUB-COMMITTEE ON MARINE ENVIRONMENT AND ECOSYSTEMS (SCMEE)

7. The SCMEE drew up and agreed on the following recommendations:

- The SCMEE proposed that bycatch data on elasmobranches, on gelatinous species (algae and invertebrates) as well as catches of red coral should be recorded through the Task 1 framework. As previously suggested by the SCSI this reporting should be done by species for each Operational Unit and by gear and period. A special Operational Unit for red coral harvesting should be defined and included in the current reporting scheme.
- The SCMEE recommended the following **management measures for the Red Coral** fisheries in the Mediterranean and Black Sea. Stricter measures already in place should be maintained and adaptive approach should be considered.
  - To set up a minimum size of 10 mm of basal diameter with 20% tolerance.
  - To prohibit the harvesting of the shallow water populations in the depth less than 50 meters. Stricter measures already in place should be maintained and adaptive approach should be considered.
  - To establish a daily and/or seasonal quota system based on number of licenses issued to control fishing effort. This quota system shall include a reporting system for harvesters with the standard GFCM data submission scheme (Task 1) adapted to coral harvesting and an appropriate monitoring system for landings.
  - To set up a system of permanent or temporary (in a rotational fashion) fisheries closure areas for red coral according to the status of the resource.
- It was stressed that more pilot studies on selectivity and bycatch reduction should be carried out to cover the totality of the region and to test different mesh sizes to model selectivity patterns more widely.

- The proposal of promoting the marketing of catches taken with the more selective gears through an "eco-labelling" is widely accepted. It was stated that it should improve the long term beneficial effect on the incomes after the usual short term losses.
- The SCMEE suggested that TECHNOMED network could prepare a new version of the protocol on selectivity as a standard document which could be available for any Mediterranean case study, including socio-economical indicators to be collected. The standardized methodology of the statistical analysis should be improved and completed (as minimum number of hauls) to make more reliable the conclusions on the catch and economical losses of the implementation of a selectivity device.
- Regarding established Fisheries Restricted Areas, The SCMEE noted with concern the absence of information and mechanisms that could allow the SAC to assess the effects of current regulations on the FRAs, particularly in the Gulf of Lions. It took this opportunity to stress the importance and urgency to set up such kind of tools. The SC took note also of the importance of the research on submarine canyons.
- The SCMEE endorsed the proposal of a new FRA in the seamounts of the Balearic islands for its consideration by the SAC on the basis o f information detailed in the Annex I

SUGGESTED ACTION

8. The Committee is invited to review the conclusions and recommendations of its Sub-Committees, ad hoc Working groups and Workshops.

9. The Committee is also invited to use the advice provided by the Sub-Committees to draw up multidisciplinary management measures, particularly for multispecies shared fisheries, as well as to put together a consolidated workplan, as appropriate, in conjunction with deliberations under agenda item 7 (document GFCM:SAC13/2011/4).

Annex I

Date of endorsement by the SCMEE

02/12/2010

STANDARD FORMAT FOR THE SUBMISSION OF PROPOSALS FOR GFCM FISHERIES RESTRICTED AREAS (FRA) IN THE MEDITERRANEAN

Name of the FRA:

Seamounts of the Mallorca Channel, Balearic Islands.

Submitted by (Institution, Scientists, GFCM Members…):

OCEANA

Plaza de España - Leganitos, 47
28013 Madrid (España)
Tel.: + 34 911 440 880
Fax: + 34 911 440 890
europe@oceana.org
www.oceana.org

Date of submission:

November 2010

1 EXECUTIVE SUMMARY (maximum 500 words)

Supply a summary of the information contained in sections 2 to 8, including the expected results.

Oceana is presenting the proposal for a new Fisheries Restricted Area (FRA) covering the main seamounts of the Mallorca Channel (Balearic Islands): Emile Baudot, Ausias March and Ses Olives (>800, 300 and 500-600 meters high respectively). Oceana has studied these seamounts since 2006 with the use of an ROV (Remotely Operated Vehicle), and we have identified more than 200 taxa, 25 of which have been listed by various international conventions and national and international laws, and up to 25 habitats classified according to the EUNIS code. Moreover, at least twelve identified species are listed as priority species by the General Fisheries Commission for the Mediterranean (GFCM), including *Eledone cirrhosa, Lophius piscatorius, Merlangius merlangus, Merlucccius merluccius, Mullus barbatus, Mullus surmuletus, Nephrops norvegicus, Octopus vulgaris, Palinurus mauritanicus, Palinurus elephas, Scomber scombrus and Trachurus trachurus*. New information collected during the summer of 2010 is being analysed by Oceana, and new discoveries include, among others, a vast field of cnidarian *Isidella elongata* in apparently healthy condition.

The unique topographic and hydrographic conditions of the Balearic Promontory, factor greatly in the concentration of both demersal and pelagic commercial species in the area. The Mallorca Channel is also very important to high priced commercial species, especially crustaceans, demersal fish and large pelagics.

Little is known on the true extent of fishing activity in the seamounts area, though numerous oceanographic expeditions carried out under the TUNIBAL project have described the importance of the area for the reproduction of tuna and tuna related species, as these areas are known spawning grounds for these species. Additionally, recreational fishing competitions for large pelagic species are known to take place over the Emile Baudot seamount, trab setters often fish for *Plesionika* spp. on Ses Olives, and VMS data is available on bottom trawling fleet fishing for red shrimp (*Aristeus antennatus*) on the slopes of Ausias March. Oceana has also documented a lot of discarded fishing gear, especially fishing line and nets, as well as different types of garbage on the three seamounts and in their surrounding areas. A new FRA encompassing these seamounts would enable the establishment of a proper management plan for fisheries in the area that would promote the preservation of important marine resources and communities, and benefit recreational, artisanal and commercial fisheries in the Balearic area.

2 AREA IDENTIFICATION

2.1 GFCM GEOGRAPHICAL SUBAREA

http://www.icm.csic.es/rec/projectes/scsa/SAC_Geographical_SubAreas_2007.pdf

GSA5 Balearic Islands

2.2 NAME OF THE FRA

Seamounts of the Mallorca Channel, Balearic Islands.

2.3 GEOGRAPHIC LOCATION

2.3.1 General location

Mallorca Channel, Balearic Islands, NW Mediterranean Sea.

2.3.2. Precise location of the proposed core area: provide geographical coordinates(latitude and longitude in degrees, minutes and seconds) for the vertex of a polygonal area.

The proposed area in two subareas:

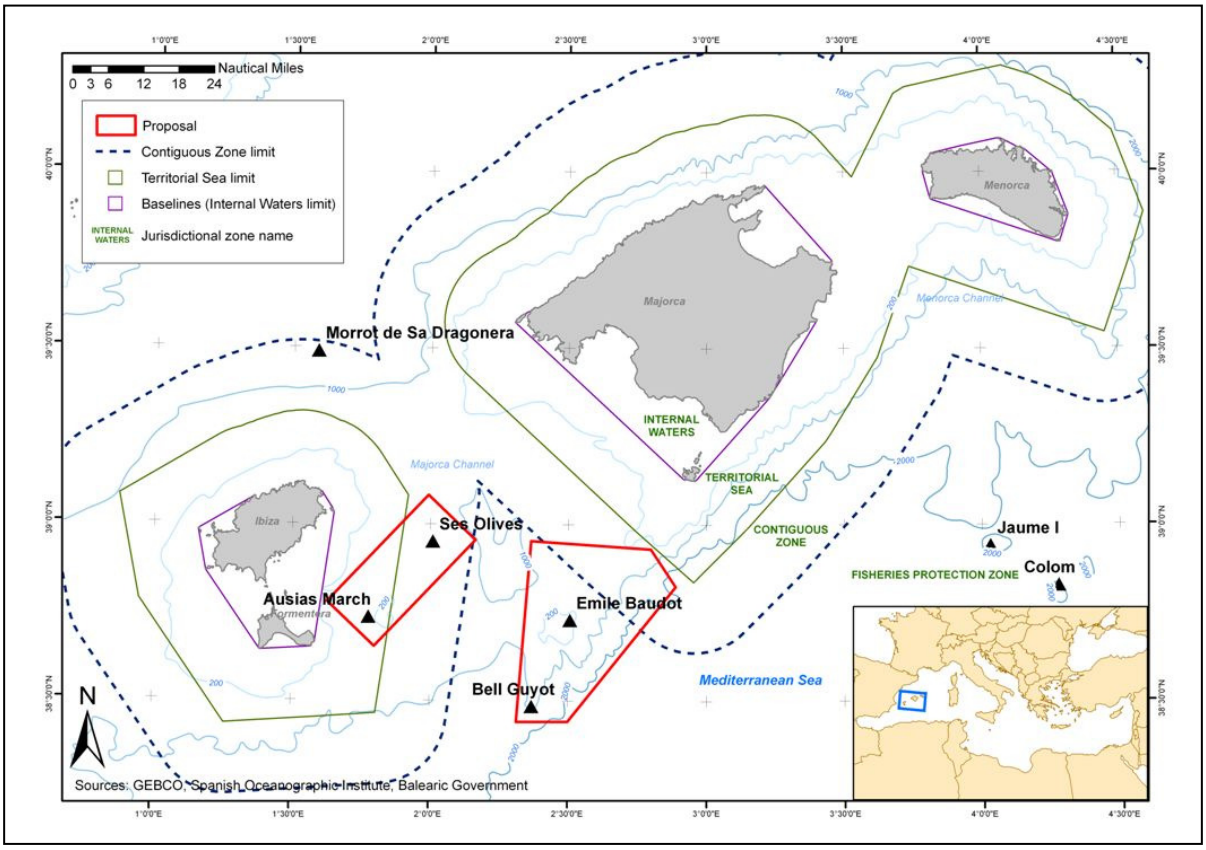
Subarea 1. Ausias March and Ses Olives
38º39'12"N 1º47'58"E
38º46'44"N 1º37'41"E
39º04'57"N 1º59'03"E
38º57'23"N 2º09'49"E

Subarea 2. Emile Baudot:
38º26'26"N 2º18'51"E
38º57'13"N 2º21'54"E
38º55'52"N 2º47'56"E
38º49'29"N 2º53'20"E
38º26'29"N 2º29'56"E

2.3.3. Buffer area (if applicable); provide geographical coordinates (latitude and longitude in degrees, minutes and seconds) for the vertex of a polygonal area.

Not applicable

2.3.4. Location Map: include geographical coordinates of the core and buffer areas, bathymetry, and the boundary of international waters. Add a global reference map of the Mediterranean with the location of the site.



2.3.5. Depth range (in m; specify core and buffer area, if applicable)

Subarea 1. Ausias March and Ses Olives: - 90 m to -1000 Subarea 2. Emile Baudot: - 80 m to 2750 m Total depth range: - 80 m to 2750m

2.4 SURFACE AREA (in ha and km^2; specify core and buffer area, if applicable)

Subarea 1. Ausias March and Ses Olives: 187900 ha, 1879 km^2. Subarea 2. Emile Baudot: 94200 ha, 942 km^2. Total surface area: 282000 ha, 2820 km^2

3 SITE DESCRIPTION

3.1 MAIN PHYSICAL FEATURES

3.1.1. Geology/Geomorphology

Give a brief description of the geological aspects; processes of sedimentation and erosion observable in the area and other geomorphologic features or geological risks. Indicate bibliographical sources.

With an extension of over 50,000km², the Balearic promontory divides the northeastern Mediterranean in two, leaving the Valencia trough on the NW and the Algerian basin on the South (Acosta *et al.*, 2004). The Emile Baudot, Ausias March and Ses Olives seamounts are located in the heart of the Mallorca channel, one of three channels along with the Menorca and Ibiza channels, that cross the Balearic promontory, reaching depths of over 1,000m. Thus, the proposed area is located between the islands of Ibiza, Formentera and Mallorca and includes the most important seamounts of this channel: Ausias March, Ses Olives y Emile Baudot. Ausias March, located 9 nm NE of Formentera which covers an area of 600 km²; and Ses Olives, located 18 nm E of Ibiza, covering an area between 90 and 100 km². Both seamounts are continental in origin and constitute part of the eastern half of the Balearic continental shelf (Acosta *et al*, 2002a). On the other hand, Emile Baudot, which covers roughly 100 km², is volcanic in origin and is surrounded by a field of 118 volcanic peaks with an extension of 513 km² (Acosta *et al.*, 2002b). Emile Baudot is located on the crest of the escarpment bearing the same name, which descends from its base towards the SE, almost vertically, to over 2,000 meters depth.

3.1.2. Other interesting physical or chemical features: Such as hydrodynamics, frontal areas, upwelling, etc than support the proposal.

The Balearic promontory can be considered individual region within the western Mediterranean (Pinot *et al.*, 1994; Galarza *et al*., 2009) since it is located within the transition area between the two main sub-basins in the western Mediterranean: the Algerian Basin and the Ligurian-Provencal Basin. As such, there is significant exchange of waters with different densities and temperatures in the channels that cross the promontory between islands. On one hand, the Modified Atlantic Waters (MAW) travel north through the Straits of Gibraltar and on the other, the colder and more saline Surface Mediterranean Waters (SMW) come from the Gulf of Lyons.

As a consequence of these unique conditions, the area presents important formations of eddies, fronts and currents (Pascual *et al.*, 2002). These currents were recorded in the promontory channels moving both North and South (Astraldi *et al.,* 1992) although they move more intensely North in the Mallorca channel because the inflow of eddies that form in the southern Balearic Sea, the Algerian Basin, push the warmer waters towards the inside of the channel (Pinot *et al.*, 2002).

Despite its distinct oligotrophic environment and low concentration of plankton, the area's complex oceanography makes the southern Balearic Sea an ideal spawning area for various tuna species including bluefin tuna (*Thunnus thynnus*), bullet tuna (*Auxis rochei*) and albacore (*Thunnus alalunga*), among others (García *et al.*, 2005), as well as for a variety of decapod crustaceans. In addition, up to 5 important fishing grounds have been identified around the seamounts (Carbonell, 2005).

3.2 BIOLOGICAL FEATURES

3.2.1. Habitats: A brief description of the dominant marine habitats including pelagic ones if applicable

The only information available about the communities present in the area around the seamounts is the result of the samplings completed by Oceana. Other studies have focused more on the seamounts' geological aspects (see 3.1.1.).

The Ausias March and Emile Baudot peaks are located at depths (-90 m and -80 m, respectively) which allow the development of calcareous red algal communities, constituting coralligenous biocenosis and maerl facies. Sponge fields can also be found here. In deeper waters, the seabeds vary from hard to sandy, sandy-detritic and sandy-muddy bottoms in which a variety of facies have been identified including brachipods, echinoderms, cnidarians, crustaceans, molluscs and poriferans, as well as vertebrates like flat fish, triglids and elasmobranchs, among others. Facies of gorgonians, with particular presence of *Paramuricea clavata* and *Eunicella verrucosa*, among others, have been identified on the rocks of the three seamounts. The rocky edges of the peak of Ses Olives (-220 m) also harbour specimens of the black coral *Leiopathes glaberrima*.

As far as the water column is concerned, the area's unique oceanographic characteristics, given the bottom topography and the channel's hydrodynamic qualities, convert this into an important pelagic environment for species of economic and/or ecological interest like various tuna and tuna-like species, cetaceans, marine reptiles and sharks.

3.2.2. List of regionally important species

List here those marine species protected by international agreements (specify the agreement) and/or included in the GFCM priority list. If applicable, give the IUCN category. Any other species may be listed if it is clearly considered of regional importance given its high representation in the area. For each species state:

a) its relative abundance as Common (C), Uncommon (U) or Occasional (O), b) Its regional status as rare (r), endemic (e) and/or threatened (t), and

c) its status as an important resident population (R), or important for its breeding (B), feeding (F), wintering (W) or migratory passage (M)

SPECIES	Rel. Abundance (C) (U) (O)	Regional STATUS (r) (e) (t)	Local STATUS (R) (B) (F) (W) (M)
Artropodos			
Nephrops norvegicus (7)	**C**		**R**
Palinurus elephas (7)	**C**		**R**
Palinurus mauritanicus (7)	**C**		**R**
Cnidarios			
Antipathes dichotoma (2,3,5)		**t**	**R**
Caryophyllia cyathus (5)		**t**	**R**
Eunicella verrucosa (6/VU)		**t**	**R**
Leiopathes glaberrima (3,5)		**t**	**R**
Savalia savaglia (2,3)		**t**	**R**
Cordados			
Caretta caretta (1,2,3,4,6/EN)	**C**	**t**	**M**
Epinephelus caninus (6/DD)	**C**	**t**	**R**
Lophius piscatorius (7)			**R**
Merlangius merlangius (7)	**C**		**R**
Merluccius merluccius (7)			**R**
Mullus barbatus (7)	**C**		**R**
Mullus surmuletus (7)			**R**
Physeter macrocephalus (1,2,3,4,5,6/VU)	**C**	**t**	**F**
Polyprion americanus (6/DD)		**t**	**R**
Raja montagui (6/LC)	**C**	**t**	**R**
Scomber scombrus (7)	**C**		**R**
Stenella coeruleoalba (1,2,3,4,6/LC)	**C**	**t**	**F**
Trachurus trachurus (7)	**C**		**R**
Tursiops truncatus (1,2,3,4,5)	**C**	**t**	**F**
Moluscos			
Charonia lampas (2,3)		**t**	**R**
Eledone cirrhosa (7)			**R**
Erosaria spurca (2,3)		**t**	**R**
Octopus vulgaris (7)	**C**		**R**
Ranella olearium (2,3)		**t**	**R**
Poríferos			
Asbestopluma hypogea (2,3)	**C**	**t**	**R**
Aplysina cavernicola (2,3)	**C**	**t**	**R**
Axinella polypoides (3)	**C**	**t**	**R**
Spongia agaricina (2,3)	**C**	**t**	**R**
Tethya sp. (3)	**C**	**t**	**R**

The listed protected species have been documented and identified by Oceana on the seamounts of the Mallorca channel. Currently, new information is being analysed, so the number of protected species observed in the area is expected to increase. The treaty is indicated in parentheses (1) Habitats Directive./ (2) Berne Convention./ (3) Barcelona Convention./ (4) Bonn Convention./ (5) CITES./ (5) IUCN Red List./ (7) GFCM priority species.

Various experts have proposed protection for other species observed in the area that are not currently listed in any international convention (Fautin, Daphne G. 2009; Boudoresque, 1991): red algae *Mesophyllum alternans* and *Neogoniolithon mamillosum* and cnidarians *Adamsia carciniopados*, *Paramuricea clavata, Paramuricea macrospina* and *Swiftia pallida*.

3.2.3. Occurrence of biological and ecological processes relevant to fish resources (essential fish habitats)

According to Oceana samplings, including the latest data obtained during the 2010 campaign currently being analysed, we can highlight the presence of various habitats that are important for fishery resources, including vulnerable or essential fish habitats:

- *Isidella elongata* bed between Ausias March and Ses Olives, with large specimens in good state of health, on a muddy bottom at roughly 500 m depth.
- High concentration of the crinoid *Leptometra phallangium* documented on the eastern slope of Ausias March seamount, as well as some individuals in Emile Baudot.
- Large braquiopods bed (*Gryphus* sp.) in Emile Baudot.
- Some specimens of the sea pen *Funiculina quadrangularisha* were identified during a transect between Ausias March and Ses Olives; more specimens are expected to be found in adjacent areas.

As mentioned above, one of the most important areas is the south of the Balearic Islands, including the entire area proposed for protection, because tuna and other species like albacore (*Thunnus alalunga*), bluefin tuna (*Thunnus thynnus*), bullet tuna (*Auxis rochei*) and swordfish (*Xiphias gladius*) use it as a spawning ground, among others. The Spanish Oceanographic Institute, within the framework of the TUNIBAL project to survey bluefin tuna larvae in the Mediterranean, detected elevated concentrations of these larvae around the Mallorca channel seamounts. Recently (Juan and Lleonart, in press), the south of the Balearic Islands was identified as a pelagic essential fish habitat due to its ecological richness and the need to protect it to conserve species like bluefin tuna, sperm whales and even the white shark.

Many other species targeted by industrial and recreational fisheries –from the Lophiidae, Mullidae, Gadidae, Trachinidae, Serranidae, Triglidae, Scorpaenidae, Pandalidae and Octopodidae families- have been documented and identified on those seabeds or in the overlying water column.

The social and economic importance of the different fishing activities around the Mallorca channel seamounts cannot be estimated due to a lack of data.

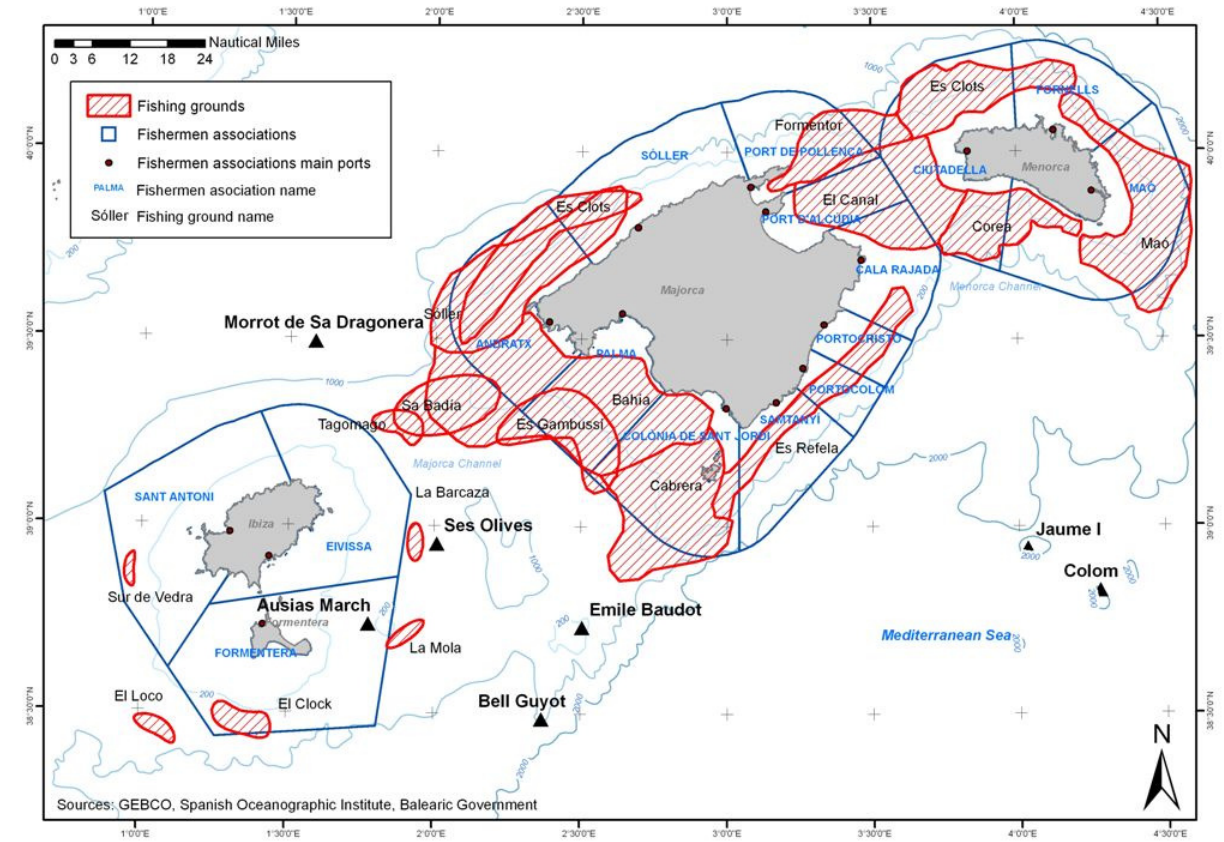
3.3 USE OF NATURAL RESOURCES

3.3.1. Current human use and development of fisheries

a) Briefly describe the current use of the area by artisanal, industrial and recreational fishing.

As mentioned above, the southern area of the Balearic Sea, the proposed area included, is the fishing ground for the summer surface longlining fleet and seining fleet targeting *Thunnus thynnus* and other species of high commercial value including swordfish (*Xiphias gladius*), albacore (*Thunnus alalunga*) and bullet tuna (*Auxis rochei*).

In addition, two other fishing grounds within the proposed area, La Mola and La Barcaza (García, 2004), close to Ausias March and Ses Olives respectively, are used by the trawling fleet targeting red shrimp (*Aristeus antennatus*). Trawling marks have been documented at different depths in this area and on these two seamounts. Emile Baudot, however, is inaccessible for the industrial fleet, taking into account the limited fishing hours and price of fuel, because this seamount is located far from the coast, roughly 30 nm SW of Cabrera.



Although there is a lack of information available about fishing activities of any kind carried out in the proposed area, it should be mentioned that Oceana identified remnants of fishing gear, lines and nets, as well as cans, bottles, plastics and textile waste in practically all the areas sampled. In addition, recreational fishing boats were observed around the three seamounts. Therefore, we can affirm that the three seamounts are being affected, to some degree, by some type of fishing activity for which no management measures have been implemented to guarantee the conservation of the species and habitats present in the area.

b) Enter how many of the users depend on these resources, seasonality, and assessment of the social and economic importance of their use and of the perceived impact on the conservation of the area, in a score of 0-1-2-3 (meaning null, low, medium, high).

ACTIVITY AND CATEGORY	ASSESS IMPORTANCE OF		ESTIMATED No. of USERS	SEASONALITY
	SOCIO-ECONOMIC	CONSERV. IMPACT		
FISHING				
Artisanal	0 1 2 3	0 1 2 3		
Industrial	0 1 2 3	0 1 2 3		
Other:				
- Acuiculture				
-				

The limited data available for the specific area do not allow to estimate the social and economic importance of the various modes of fishing on the Mallorca Channel´s underwater elevations..

3.3.2. Current human use and development (except for fisheries)

a) Briefly describe the current use of the area for other economic sectors.

b) Enter how many of the users depend on these resources, seasonality, and assessment of the social and economic importance of their use and of the perceived impact on the conservation of the area, in a score of 0-1-2-3 (meaning null, low, medium, high).

ACTIVITY AND CATEGORY	ASSESS IMPORTANCE OF SOCIO-ECONOMIC	 CONSERV. IMPACT	ESTIMATED No. of USERS	SEASONALITY
OTHER ACTIVITES				
Tourism	0 1 2 3	0 1 2 3		
Transport	0 1 2 3	0 1 2 3		
Mining				
-				
-				

4 REGIONAL IMPORTANCE OF THE SITE

This Section aims at stressing the importance of the site for conservation at the regional scale.

4.1 PRESENCE OF ECOSYSTEMS/HABITATS OF PARTICULAR IMPORTANCE IN THE MEDITERRANEAN

The importance of protecting seamount to conserve and regenerate marine life is globally acknowledged at present time and proof of it is the continuously increasing research efforts and creation of protected marine areas including seamounts around the world.

Of the 59 identified seamounts over 1,000 m in height in the Mediterranean Sea (Kitchingman *et al.*, 2007), only one, Eratosthenes, is protected, precisely as the deep sea fisheries restricted area "The Eratosthenes Seamount" (GFCM/2006/3, on the establishment of fisheries restricted areas in order to protect the deep sea sensitive habitats), given the deep sea habitats present on the seamount and their vulnerability to certain types of fishing techniques and other aggressive human activities. On the other hand, various international conventions and legislations concerning these marine ecosystems applicable to the region require the adoption of adequate management and protection measures.

Southern Balearic area has been recently identify as one of the 10 priority conservation areas int he Mediterranean, as it contains important crititcal habitas and seamounts. (UNEP-MAP-RAC/SPA, 2010, Notarbartolo and Agardy, 2009).

Coralligenous and maerl beds, as those present in these seamounts, are considered as one of the main important habitats in the Mediterranean, and their conservations has been strongly reccommended by experts (Ballesteros, 2008; UNEP-MAP-RAC/SPA, 2008) and the international legislation is protecting these habitats from agresive fishing activities (Concil Regulation Nº 1967/2006, of 21 December 2006).

4.2 PRESENCE OF HABITATS THAT ARE CRITICAL TO ENDANGERED, THREATENED OR ENDEMIC SPECIES

Name the habitat types and the species linked to it. Give information about its status (IUCN classification, etc.).

The entire Balearic Sea has been identified as an ecologically and biologically significant marine area (EBSA) in need of protection (Nortarbartolo and Agardi, 2009), after the application of scientific criteria (see 4.1.) for the selection of future marine protected areas within the framework of the Barcelona Convention and the Convention on Biodiversity, among others.

The area around the Mallorca channel seamounts is a critical habitat for bluefin tuna reproduction, a feeding ground for the loggerhead turtle and an important habitat for sperm whales and other toothed whales (UNEP-MAP-RAC/SPA, 2010).

At least 9 species listed in the Barcelona Convention annexes are present in the area, including cnidarians *Antipathes dichotoma*, *Leiopathes glaberrima* and *Savaglia savaglia,* the loggerhead turtle *Caretta caretta,* cetaceans *Physeter macrocephalus, Stenella coeruleoalba* and *Tursiops truncates,* molluscs *Charonia lampas, Erosaria spurca* and *Ranella olearia* and the sponges *Asbestopluma hypogea, Aplysia cavernicola, Axinella polypoides, Spongia agaricina* and *Tethya* sp.

Some of these species are also strictly endemic to the Mediterranean, like the carnivorous sponge *Asbestopluma hypogea* or the poriferan *Spongia agaricina.* The red sea pen *Paramuricea clavata* is also endemic and frequently occurs on these seamounts, although it is more widely distributed.

Last, it should be mentioned that coralligenous and maerl concretions are extremely vulnerable to aggressive fishing activities, particularly bottom trawling. These formations are very important for a variety of marine species, It is therefore neccesary to implement an efective and actual ban of this activity on these seabeds.

4.3 OTHER RELEVANT FEATURES

4.3.1. Educational Interest

E.g. particular values for activities of environmental education or awareness

The dissemination of the results of Oceana's campaigns focused on the Mallorca channel seamounts during recent years, especially during campaign months, has been welcomed by the media, offering many people extensive information about Mediterranean marine diversity, Mediterranean seamounts, their threats and the importance of conserving and correctly managing them. Sectors directly or indirectly related to the oceans and seas, like tourism, industrial and recreational fishing or maritime transport, could also be provided with this information in order to directly implicate them and improve the marine environment and its resources by transmitting the value of the different marine ecosystems and the need to protect and recover them.

Outside the fishery, political or environmental scopes, it can be said that marine protected areas and FRAs are a mystery to the general public, as is the importance of these sites in the Mediterranean. Initiatives like this proposal, its implementation, management and benefits should be widely disseminated in all fields and scopes in order to reinforce its value.

4.3.2. Scientific Interest

Explain if the site represents a particular value for research.

As already explained, there is important lack of information about deep sea Mediterranean habitats. Thus, seamounts are also widely unknown, especially if we refer to the communities they support, their state of conservation, threats and possibilities of recovery. Hardly any studies have been completed in the Mediterranean that provide data about the biology of seamounts, except the studies on Eratosthenes Seamount, Santa María di Leuca or a few studies on the seamounts in the Alboran Sea that were completed by the Spanish Oceanography Institute within the framework of the DEEPER project. The information available about the ecology of the benthic communities that live on the seamounts of the Mallorca channel is generated exclusively by studies completed by Oceana.

5 IMPACTS AND ACTIVITIES AFFECTING THE AREA

5.1 IMPACTS AND ACTIVITIES WITHIN THE SITE

5.1.1. Exploitation of natural resources

Assess if the current rates of exploitation of natural resources within the area (e.g. fishing, sand and mineral exploitation) are deemed unsustainable in quality or quantity, and try to quantify these threats, e.g. the percentage of the area under threat, or any known increase in extraction rates.

The state of the exploited fishery resources in the area proposed for protection, or adjacent areas, like crustaceans and other deep sea species, has not been evaluated. Thus, it is impossible to know whether they are overexploited or threatened.

5.1.2. Threats to habitats and species

Mention any serious threats to the habitat (e.g. modification, disturbance, pollution) or to species (e.g. disturbance, poaching, introduced alien species...) within the area.

- Fishing. Deep sea trawling involves the destruction of the seabed and all the benthic ecosystems with which this gear comes into contact, as well as the continuous lifting of sediments that makes the environment turbid and buries its inhabitants, while also negatively affecting adjacent areas and ecosystems.
- Waste. As already mentioned, Oceana samplings showed significant amounts of waste, garbage and remnants of lost or abandoned fishing gear in the proposed area, even though this area is not heavily frequented.
- Expansion of the port of Ibiza. At this time, dredged material from the construction work to expand the port of Ibiza is being dumped, with authorisation from the Spanish government, in the proposed FRA. No information is available about the deep sea habitats being affected by the dumping in this exact point or in the area affected by the dispersion of sediments via channel currents.

5.2 IMPACTS AND ACTIVITIES AROUND THE SITE

5.2.1. Pollution

Name and describe sources of pollution.

- Contamination, not only in this particular area, but in the entire Mediterranean, identified by MARPOL as "special area" due to its extreme vulnerability to hydrocarbon contamination. This is, however, one of the most contaminated seas in the world due to the maritime traffic it supports and the coastal activities that produce waste dumped via rivers, streams and runoff, or directly dumped into the sea.
- Waste. The source and scope of the waste has not been estimated for Mediterranean seabeds, but we can say that during Oceana's expeditions in this and other areas of the Balearic, Mediterranean and Cantabrian Seas and Atlantic area, the presence of waste, garbage and abandoned or lost fishing gear is constant.

5.2.2. Other external threats, natural and/or anthropogenic

Briefly describe any other external threat to the ecological, biological, aesthetic or cultural values of the area (such as unregulated exploitation of natural resources, serious threats on habitats or species, pollution problems) likely to influence the area in question.

- Invasive species. The presence of invasive species including algal species *Lophocladia lallemandii, Caulerpa racemosa, Asparagopsis* spp. and *Oculina patagonic*a, among others, has been documented in the entire Mediterranean and in the Balearic Sea. *C. racemosa* and *L. Lallemandii* have been documented in the Mallorca channel at depths over 70 m (Oceana, . Allochthonous species have yet to be identified in the area of the seamounts.
- Acidification. This may become one of the most serious problems for biodiversity, with serious effects on marine fauna present in the proposed area, particularly on crustaceans, pteropods, corals and gorgonians.
- Climate change. Increased temperature and salinity in the Mediterranean and Balearic Sea is a fact, and a variety of research projects have been implemented to monitor these changes, as is the case of the Mediterranean Group on Climate Change of the Spanish Oceanographic Institute. In addition, FAO has warned about the negative effects of these changes on vulnerable marine ecosystems (Bench *et al.*, 2008).
- Maritime traffic. The waters of the Mallorca channel support heavy traffic from industrial, artisanal and recreational fishing vessels and, in particular, from cruise ships, charter vessels and private yachts. Various threats are related to this maritime traffic including acoustic contamination, risk of collisions and hydrocarbon contamination, all of which seriously affect the marine fauna present in the channel, especially in the pelagic environment.
- Coastal construction. The expansion of ports, like the work being completed in the port of Ibiza that is the source of the dumping of dredged material into a specific area in the Mallorca channel close to the seamounts, and other coastal construction work is threatening the health of seagrass beds and other coastal ecosystems of the Balearic Islands.
-

5.2.3. Sustainable development measures

Comment whether the area is covered by a management plan, or bordering upon a zone under such a plan.

The proposed area is located within the range of application of certain regional, European, national and autonomous management tools that limit the extraction of natural resources:

- GFCM recommendation to prohibit certain aggressive fishing techniques to protect deep sea vulnerable ecosystems at depths over 1,000m. The area SE of the Emile Baudot sub-area includes part of the Emile Baudot escarpment, which descends to 2,750 m, making it an area of application for the above recommendation.
- CE Regulation concerning management measures for sustainable exploitation of fishery resources in the Mediterranean (Council Regulation Nº 1967/2006). The regulation prohibits certain fishing methods at depths over 1,000 m, as well as over coralligenous and maerl concretions.
- Declaration of Fishery Protected Area by the Spanish Government (Royal Decree 1315/1997, of 1 August, modified by Royal Decree 431/2000, of 31 March). The proposed area is mostly located within the limits of the fishery protected area established by the Spanish government (see 2.3.4.).
- Comprehensive Management Plan for the conservation of fishery resources in the Mediterranean (Order ARM/143/2010, of 25 January). The Spanish Fishery Protected Zone is, along with the Spanish territorial sea, within the scope of application of this Spanish regulation prohibiting certain fishing gear over coralligenous and maerl concretions and at depths over 1,000m. Unfortunately, this regulation is not being applied correctly because trawling marks and remnants of fishing gear have been identified on the coralligenous and maerl bottoms around these seamounts.
- Autonomous and national legislation regulating professional fisheries. Emile Baudot seamount is outside the reach of the trawling fleet after the implementation of some management measures, such as the establishment of fishery restricted hours. However, nets, lines, garbage (recreational and sports fishing is carried out in the area), and even some trawling marks have been identified here.

We should also mention the international environmental conventions and legislations that are applicable in the proposed area, such as CBD, ACCOBAMS, Berne Convention, MSFD, Habitats Directive, Birds Directive and Barcelona Conventions, as well as UNCLOS and CITES.

6 EXPECTED DEVELOPMENT AND TRENDS[1]

This is not always easy to assess and thus, it is not obligatory to fill in this Section.

6.1 EXPECTED DEVELOPMENT AND TRENDS OF THREATS TO AND PRESSURES UPON THE AREA

Deal briefly with the development of economic activities within the area

Although new projects are not currently affecting the area, we should add the development of the oil industry around the world and its capacity to exploit deeper areas far from the coast, even though this industry is incapable of responding to the environmental risks involved in its activities. The existence of pockmarks in the area (Acosta, 2001) can be indicative of the presence of gas seeps, which could make it a future target for this industry. The same occurs with fishing vessels, which are more powerful and better equipped, targeting resources in deeper waters because most stocks are overexploited. This overexploitation, far from being reversed, is increasing. Proof of this is the drastic decrease in catch rates of large pelagics, as well as in the size of the specimens, leading to serious effects throughout the trophic chain and, as a consequence, in the output of fisheries.

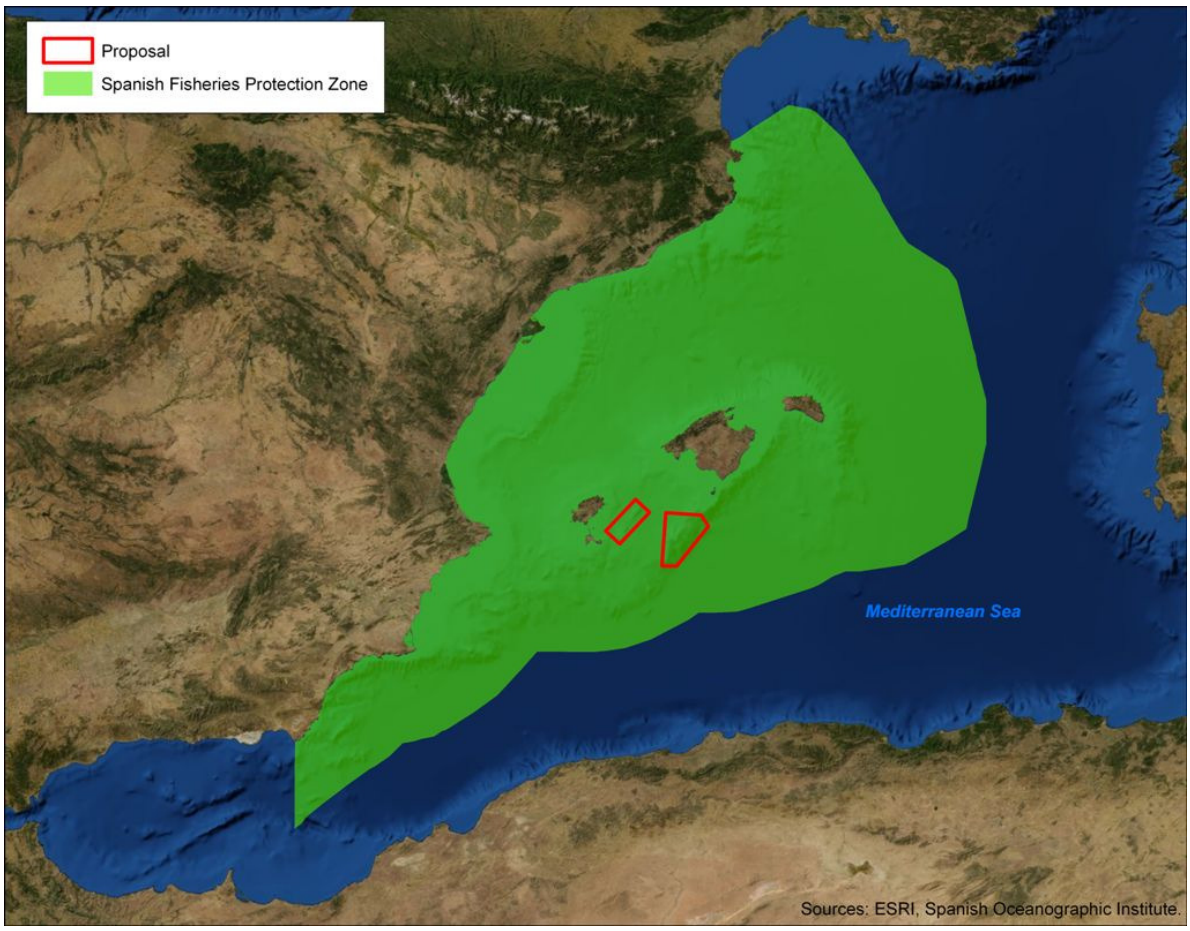
[1] By expected development and trends are meant the development, which is thought most likely to occur in the absence of any deliberate intervention to protect and manage the site.

7 MANAGEMENT AND PROTECTION REGIME

7.1 LEGAL STATUS (if applicable)

7.1.1. Historical background of the management related to the area

The area is practically entirely located within the limits of the Spanish Fishery Protected Zone. Specifically, the area is both within the territorial sea (Ausias March), in the contiguous area (Ses Olives) and in the fishery protected zone (Ses Olives and Emile Baudot). These waters, which are under Spanish jurisdiction and as a consequence under EU jurisdiction, are fully within the scope of application of national and European conventions and legislations.



7.1.2. Regulatory measures currently ruling the mangement on the site
Mention if the area, or part of it, has been designated and on what date, with an international conservation category.

Not applicable

7.1.3. Objectives
Name in order of importance the objectives of the area as stated in its legal declaration.

Not applicable

7.2 LEGAL BACKGROUND

Briefly mention if the area or part of it is subject to any legal claim, or to any file open in that connection within the framework of an international body.

The area proposed here for protection as FRA lies in different jurisdictional zones. The western patch lies partially in the Spanish Territorial Sea and the rest of the proposal is on the 'Fisheries Protection Zone', declared by the Spanish government in 1997(see 7.1.1.). This last zone is likely to be claimed as Spanish Mediterranean Economic Exclusive Zone during the next years. Also, part of the FRA proposal is in the Contiguous Zone.

7.3 LEGAL PROVISIONS FOR MANAGEMENT

7.3.1. Zoning regulating the area

Briefly state if the legal text protecting the area provides for different zones to allocate different management objectives of the area (e.g. core and scientific zones, fishing zones, etc) and in this case the surface area of these zones. Include a map as an annex.

Not applicable

7.3.3. Legal competencies

Legal competence and responsibility with regard to administration and implementation measures

As already mentioned, the Spanish government has declared these waters under its jurisdiction, within the limits of the Spanish Fishery Protected Zone. As such, the area is both within the territorial sea (Ausias March), in the contiguous area (Ses Olives) and in the fishery protected zone (Ses Olives and Emile Baudot).

7.3.4. Other legal provisions

Describe any other relevant legal provisions, such as those requiring a management plan or any other significant measures concerning the protection and management of the area.

Not applicable

8 OBJECTIVES OF THE FRA AND PROPOSED MANAGEMENT MEASURES

8.1 OBJECTIVES OF THE FRA

State the reasons that justify the designation of the FRA

he seamounts of the Mallorca channel, according to data currently available, support a variety of marine habitats and communities that are important for the Mediterranean region, both on its hard and rocky bottoms as well as on its soft and sandy beds. Vulnerable habitats present here include coralligenous bio-concretions, maerl beds, *Leptometra phalangium* beds, *Gryphus* sp. beds and facies of *Isidella elongata*, whose protection against aggressive human activities is now urgent. Over 200 taxa and at least 32 protected species described to date, as well as other species, have been proposed for inclusion in protection lists due to their importance for the marine ecosystem. This area also harbours ecosystems that are vital for both pelagic and benthic species including bluefin tuna *Thunnus thynnus* and similar species, cetaceans, sea turtles and sharks, and species endemic to the Mediterranean such as the carnivorous sponge *Asbestopluma hypogea* which has been documented on these seamounts, as well as a variety of species of high commercial value.

All of the habitats and species described are exposed to the negative effects of human activities if they remain unprotected. These ecosystems must be included in a protection treaty that lays down the guidelines for the management of these communities and their use, if they are to be conserved. Protecting these seamounts and their ecosystems as an FRA could increase the marine richness in the area, conserving what may be the last healthy *Isidella elongata* beds in the Mediterranean, a sanctuary for a multitude of protected species and a recovery area for a variety of species of commercial value.

8.2 PROPOSED PROTECTION MANAGEMENT MEASURES FOR THE FRA

8.2.1. Management measures

Suggest management measures to be implemented in the FRA

- A closure of bottom trawling fishing activities in the described area
- Preparation of a detailed census of the number of vessels that fish in the area and the fishing gear used, in order to assess its impact on the area and implement appropriate actions to minimize it.
- Identify critical habitats for priority species in the proposed area and protect these habitats through the statement of additional fishing restrictions, according to the state of stocks.

8.2.2. Monitoring, Control and Surveillance measures

Suggest measures to effectively enforce the FRA

- Evaluate and monitor the status of available resources.
- Control and monitor human activities to avoid potential infractions and negative impacts on the proposed area. The monitoring and control systems currently in place at European Community (Council Regulation No. 1224/2009 of 20 November 2009) and Spain (Law 3 / 2001 of March 26) include sufficient capacity to ensure its implementation.
- Control and monitoring the fishing activities through a census of vessels authorized to fish in the area, through the VMS system.

8.2.3 Socioeconomic impact(s) of the FRA

Prevision of the socioeconomic impact(s) of the proposed measures

- Conserve and restore threatened ecosystems of importance for the Mediterranean.
- Increase catches for the entire fleet that operates in the Mallorca channel and beyond, thanks to the conservation of critical habitats present in the area that allows the regeneration of the species.
- Spread the importance of deep marine ecosystems protection, and the threats that endanger the Mediterranean marine biodiversity.

8.2.3.1. Economic evaluation of the ecosystems services (not only marketable)

Economic value of the goods and services that the ecosystem supports

The conservation of submerged elevations, as important areas for many pelagic and benthic species, provides benefits for fisheries, within and outside the protected area, for tourism, especially important in the Balearic Islands, or for recreational activities like diving or whale watching..

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(stakeholders (if applicable) and name(s), position(s) and contact address(es) of the person(s) that compiled the report and/or can provide further information).

Ricardo Aguilar
Research Directo – Europe
raguilar@oceana.org
Leganitos 47 6ª
28013 Madrid. Spain

Silvia García
sgarcia@oceana.org
Leganitos 47 6ª
28013 Madrid. Spain

T +34.911.440.880
F +34.911.890
www.oceana.org