



MINISTERO DELL'AMBIENTE
E DELLA TUTELA DEL TERRITORIO E DEL MARE



First MedSuit Regional Workshop on indicators and targets to ensure GES of commercially exploited marine populations in the GFCM area

FAO HQ, Rome, Italy, 6–7 November 2014

Draft Report

OPENING, ARRANGEMENT OF THE MEETING AND ADOPTION OF THE AGENDA

1. The “First MedSuit Regional Workshop on indicators and targets to ensure Good Environmental Status (GES) of commercially exploited marine populations” was held at the FAO headquarters in Rome, Italy from 6 to 7 November 2014. The workshop – which was organized within the framework of a joint project by the Italian Ministry of Environment and the GFCM – was attended by 52 participants, including 22 national experts, representatives of international organizations, the FAO, FAO regional projects, observers and the GFCM Secretariat. The full list of participants is provided in Appendix B of this report.

2. Mr Othman Jarboui, Chairperson of the GFCM Scientific Advisory Committee (SAC), called the meeting to order and welcomed participants, underlining the importance of the ongoing work towards achieving GES in the Mediterranean and Black Sea. In this context, he highlighted the importance of the direct involvement of the Italian Ministry of Environment thereby providing considerable impetus to this initiative. He also noted the necessary involvement of all Mediterranean and Black Sea riparian countries in the achievement of GES in the GFCM area.

3. Mr Oliviero Montanaro, Director within the Italian Ministry of Environment, conveyed the regards of the Italian Minister of Environment, H. E. Gian Luca Galletti and referred to Italy’s commitment to addressing the challenges associated with obligations under relevant frameworks, including the “Ecosystem Approach Process” (EcAp) and the EU Marine Strategy Framework Directive (MSFD). In this regard, he noted the importance of facilitating regional cooperation through existing regional institutional cooperation structures and explained that the project “A Mediterranean Cooperation for the Sustainable Use of the Marine Biological Resources” (MedSuit) had been launched by the Italian Ministry of Environment and the GFCM for that purpose. Mr Montanaro emphasized the importance of achieving GES as well as setting common elements and indicators for monitoring programmes in the GFCM area, and reiterated the Italian Ministry of Environment’s desire to continue collaborating with the GFCM in order to achieve successful outcomes.

4. Mr Abdellah Srour, GFCM Executive Secretary, thanked the Italian Ministry of Environment for its direct involvement and active participation in the achievement of GES in the Mediterranean and Black Sea and thanked the participants for their attendance, also on behalf of the GFCM Chairperson, Mr Stefano Cataudella. He detailed the outcomes to date from the MedSuit project and introduced the objectives of the workshop, namely the expectation to build upon the work of the SAC on common indicators and agree on key elements for carrying out joint monitoring programmes. In addition, he stressed the need for coherence amongst the applicable frameworks at regional level with a view to avoiding duplication of effort and optimizing the use of resources.

5. The agenda was introduced and adopted with a few amendments; it is reproduced under Appendix A of this report.

RELEVANT FRAMEWORKS FOR GOOD ENVIRONMENTAL STATUS IN THE GFCM AREA

6. The SAC Chairperson briefly summarized the work carried out by the SAC and in particular the proposal on the GES indicators and targets for commercially exploited fish and shellfish populations. He noted that the SAC had recommended further work to be carried out in view of adopting common indicators at its following session to be held in March 2015. He then invited the representatives of international organizations to present their frameworks for the definition of GES.

7. Ms Gabriella Bianchi, FAO Fisheries and Aquaculture Department, presented the general properties of indicators needed to maintain sustainable fisheries in the context of the FAO Ecosystem Approach to Fisheries (EAF). She shared FAO's regional experience in the Barents Sea that required consultations with various stakeholders, the use of marine spatial planning and integrated management measures.

8. Ms Gyorgi Gurban, UNEP-MAP Secretariat, pointed out the importance of considering the full ecosystem - including human wellbeing and cultural elements that relate to fisheries - in achieving GES. She introduced the EcAp Process as a central component of UNEP-MAP activities and explained that her organization was progressing with the definition of GES under 11 ecological objectives. She referred to the ongoing cooperation with GFCM under Ecological Objective 3 (Harvest of commercially exploited fish and shellfish populations) and reiterated the need to strengthen cooperation among the regional organizations concerned.

9. Ms Irina Makarenko, Black Sea Commission Secretariat, referred to the ongoing work by her organization on the definition of GES in the Black Sea. She acknowledged that such a definition was currently lacking but that, however, efforts were underway to define ecological quality objectives. Ms Makarenko welcomed ongoing cooperation with the GFCM and expressed her desire for a coherent approach to the important items on the agenda.

10. Mr Joachim D'Eugenio, Directorate General of Environment of the European Commission, updated participants on the progress made under the MSFD. He welcomed the MedSuit project in general and the timing of the workshop in particular, as the European Commission was currently consolidating information on GES and proceeding to monitoring programmes. He emphasized the need for regional cooperation and for harmonizing work under existing frameworks. He anticipated that the outcomes of the workshop would be a positive contribution.

11. Mr Iñigo Martinez, ICES Secretariat, summarized ICES's involvement in the definition of GES, indicators and targets under Descriptor 3 of the MSFD (commercially exploited populations), as well as Descriptors 4 (marine food webs) and 6 (integrity of the seafloor). Although ICES's activities are predominantly in the North Atlantic region, several activities were organized in relation to these descriptors in the Mediterranean and Black Sea, including the participation of experts in the GFCM expert groups. He highlighted the need for regional harmonization of methods and data used in the assessment of the different descriptors, including in the Mediterranean and Black seas.

12. The GFCM Secretariat provided a snapshot of the current status of stocks in the Mediterranean and the Black Sea. The available information revealed the importance of shared stocks in the area, supporting the need for sub-regional harmonization of approaches. The presentation also highlighted the inextricable importance of the small-scale fisheries sector. It was noted that the stocks for which assessments were carried out by the GFCM were not evenly distributed throughout the GFCM area and that this element was limiting the ability to draw region-wide conclusions.

13. In the ensuing discussions, Mr Montanaro reflected on the challenges entailed in achieving coherence among the applicable regional frameworks. He referred specifically to the need to involve relevant national administrations, such as those dealing with environment and fisheries, as well as to ensure a participatory process encompassing all relevant actors and stakeholders. He thus commented on the need for tools in the governance of resources and human activities in the GFCM area and encouraged further inter-sectorial work, including but not limited to the MedSuit project.

14. Participants agreed that regional organizations should promote increased sharing of information and standardization of data collection methods. Participants also agreed that, since objectives such as those associated with the EcAp Process were region-specific, the role of regional sea conventions (RSCs) and regional fisheries management organizations (RFMOs) should be to outline universal goals and solutions and facilitate the involvement of all countries concerned.

COMMON INDICATORS TO DEFINE GOOD ENVIRONMENTAL STATUS OF EXPLOITED POPULATIONS

15. Ms Maria Teresa Spedicato, AdriaMed FAO regional project, presented a case study on the use of the Large Fish Indicator (LFI) in the South Adriatic Sea. Ms Spedicato's presentation discussed the difficulties associated with the use of this indicator, such as the definition of an appropriate 'large' size threshold. She commented on the appropriateness of LFI for the definition of GES and explained the future directions of testing LFI's applications in other areas as well as comparisons with other indicators on community structure and functional groups.

16. The GFCM Secretariat presented the list of indicators proposed to the SAC at its 16th session (Malta, March 2014) as well as an assessment of these indicators as provided by a number of national experts appointed by GFCM SAC focal points. The assessment was carried out through a questionnaire prepared by the GFCM Secretariat. A total of 21 responses out of 24 Mediterranean and Black Sea riparian countries were received, providing a representative regional coverage of the views of experts working in the field. In general, and departing from the proposal to the SAC, the indicators of 'landing', 'catch', 'fishing mortality', 'biomass index' and 'spawning stock biomass' (SSB) were considered as common indicators that could be implemented in a relatively straight-forward manner across the GFCM area. On the other hand, the indicator 'mean trophic level' appeared to be problematic due to difficulties in data collection associated with its use. Similarly, the use of the 'large fish indicator' did not achieve widespread consensus due to the difficulty of defining an appropriate 'large size' threshold.

17. Ms Spedicato shared her perspectives on the use of ecosystem diversity indicators, highly sensitive to spatial scale, and noted the difficulties in combining fisheries data with socio-economic data. She informed the meeting that MEDITS was publishing a paper about a set of ecosystem diversity indicators using a time series of 20 years.

18. A number of points were raised during the discussion on indicators, including the following:

- In light of the differences between riparian countries, the need for reliable data, and the desire to achieve coherence among different regional frameworks, it was recommended to have a reduced set of common indicators and to prioritize them in order to facilitate management;
- Indicators should be widely applicable across all the sub-regions in the GFCM area. This would accommodate shared stocks and take into account natural species distribution;
- Indicators should be linked with specific management actions or should at least serve to flag up a change in stock status that could trigger appropriate management measures;

- Some of the changes flagged up by indicators could be indicative of other phenomena different to fisheries affecting exploited populations and their ecosystems (e.g. drivers such as eutrophication, climate change or presence and abundance of non-native species);
- In addition to a set of agreed common indicators, a separate set of candidate indicators should be tested;
- Data gaps should be bridged to the maximum extent possible in order to use the indicators to evaluate more stocks. The properties of the different indicators and their effectiveness at gauging the status of populations and ecosystems in relation to the objectives should be tested. The reliability of indicators could be questionable if data on stocks is lacking or inaccurate.

19. It was suggested that the GFCM Secretariat would work on refining and specifying in further detail the selected indicators taking into account all existing available data (both fishery dependent and independent). In addition, the Secretariat would prepare a roadmap for ‘fine-tuning’ these indicators, and both the refined indicators and the roadmap would be discussed in a dedicated expert meeting as a follow-up to this workshop.

NATIONAL MONITORING PROGRAMMES

20. The national fisheries experts present at the workshop delivered presentations on the fisheries monitoring programmes in place in their respective countries. All presentations are available on the GFCM MedSuit portal: <https://gfcmedsuit.sharepoint.com/sites/MedSuit/SitePages/Home.aspx>

21. After the presentations, participants and the GFCM Secretariat posed a number of questions relating to various aspects such as data availability and sampling programmes planned under the new GFCM Data Collection Reference Framework (DCRF). The GFCM Secretariat pointed out that the DCRF, which Members will be obliged to use in reporting relevant biological, social and economic data as of 2015 (tentatively), would inherently collect some of the information required to estimate the set of agreed common indicators and, as such, could play a regional monitoring role.

22. Concerning the lack of stock assessments in several sub-regions, the GFCM Secretariat urged members to carry out periodical stock assessments through the SAC Sub-Committee on Stock Assessment (SCSA) so that the SAC could broaden its advice and cover more stocks. This would positively contribute to the efforts on indicators and enable more comprehensive monitoring programmes.

23. Another concern raised in relation to national monitoring programmes was the short duration of existing time series. In order to partly address this problem, it was suggested that the GFCM Secretariat would attempt to retrieve data from other sources, such as ongoing projects or data collection programmes, and draw the attention of Members to all available data.

JOINT MONITORING PROGRAMMES IN THE GFCM AREA

24. The GFCM Secretariat presented the steps required for setting up joint monitoring programmes in the GFCM area, with a focus on potential sub-regional case studies. Following upon previous discussions, workshop participants recommended that the GFCM-DCRF should support the collection of data needed for the estimation of the agreed minimum set of common indicators. In light of this, the Secretariat confirmed that the information to be collected by the DCRF would enable the estimation of all proposed indicators. However, further precision on the species and sub-regions needed to obtain the desired coverage was still pending and would be addressed in the subsequent phases of the DCRF implementation.

25. Since the common indicators would form the core element of joint monitoring programmes, concerns were raised on the estimation, aggregation and interpretation of indicators proposed at the workshop, and the scale to which each indicator would apply. Participants agreed that i) a clear definition of the indicators, ii) a desired target in terms of coverage and precision, iii) guidance on how to integrate indicators over different spatial scales and iv) guidelines on how to combine different indicators would be needed. Also, the periodicity of reporting of data needed to estimate these indicators should be analyzed and a review of elements already covered by the DCRF and/or existing surveys at sea should be carried out. Furthermore, participants agreed that the GFCM Secretariat should try and coordinate, to the greatest extent possible, not only with countries but also with ongoing and future projects (e.g. MEDITS) carrying out surveys, in order to collect the required data. Finally, in order to jump-start monitoring programmes, it seemed fitting to start at the sub-regional level. To this end, the Adriatic-Ionian sub-region appeared to be an ideal candidate for conducting a joint monitoring programme.

26. In addition to the discussions during the workshop, participants agreed that a roadmap towards the implementation of joint monitoring programmes should be prepared. In connection with this, it was agreed that a follow-up meeting should be held, tentatively, in 2015 within the remit of the MedSuit project. This meeting would be open to relevant experts and examine the above mentioned roadmap for its endorsement and decisions on future action. The GFCM Secretariat would ensure that the roadmap be prepared on the basis of all comments made at the workshop as well as in light of the information reported by national experts on submitted questionnaires.

CONCLUSIONS

27. A set of common indicators were selected and endorsed by the workshop on the basis of the proposal to the SAC at its 16th session (March 2014). An additional set of candidate indicators were selected for further testing. The full list is reproduced in Appendix C.

28. Further technical work on the methodology to estimate the different indicators, aggregate them at regional and sub-regional level and assess their performance would be carried out by the GFCM Secretariat, including on the basis of the questionnaires filled by national experts. The GFCM Secretariat would also review any required changes to the GFCM-DCRF, including during the workshop on the implementation of the DCRF (Spain, December 2014) and draw up a list of commercially exploited marine populations by GSA and by source of information.

29. It was agreed that joint monitoring programmes in the GFCM area should cover the minimum set of indicators included in Appendix C and should be consistent with the GFCM-DCRF, including the priority species to be addressed by these programmes. Moreover, joint monitoring programmes should be tested at sub-regional level using case studies. In particular, the possibility to test a pilot joint monitoring programme in the Adriatic-Ionian Sea would be explored in cooperation with the FAO Regional Projects, UNEP-MAP and operative relevant initiatives.

30. A second meeting under the MedSuit project would take place in 2015. A roadmap encompassing all issues relating to the above conclusions would be presented to the experts attending the meeting.

CLOSURE OF THE MEETING

31. The workshop was closed and the GFCM Secretariat reiterated its gratitude to the Italian Ministry of Environment for jointly facilitating the event. Gratitude was also expressed to the FAO for the support provided in the organization of the workshop, as well as to participants for their contributions.

Agenda

1. **Opening and arrangements of the workshop**
2. **Adoption of the agenda**
3. **Overview of relevant frameworks for the definition, monitoring and proposed measures to ensure GES of exploited marine living populations and their ecosystems in the Mediterranean and the Black Sea**
4. **Discussion on common indicators for the definition of GES of exploited marine living populations at regional and sub-regional level.**
5. **Presentation of available monitoring programmes at national level (by national experts)**
6. **Identification of key elements to undertake joint monitoring programmes in the GFCM Area, with special focus on selected case studies at sub-regional level (e.g. Adriatic Sea, the Strait of Sicily, others)**
7. **Closure of the workshop**

List of Participants

ALBANIA

Mimoza COBANI
Fishery & Aquaculture specialist
Fisheries Directorate
Ministry of Environment, Forestry and
Water Administration
Rruga e Durrësit, Nr.27
Tirana
Tel: +355 672055778
E-mail: cobanimimi@yahoo.com

Hektor XHOMARA
Silviculture and Genetic Specialist
National Environmental Agency of Albania
Forestry Department (Silviculture sector)
Sami Frasheri st. no. 4
Tirana
Mob: +355 698214907
E-mail: hektorxh@akm.gov.al

BOSNIA AND HERZEGOVINA

Admir ALADZUZ
Junior Researcher
Hydro-Engineering Institute Sarajevo
Stjepana Tomića 1
71000 Sarajevo
Bosnia and Herzegovina
Tel: +387 33207949
Fax: +387 33212466
E-mail: admir.aladzuz@heis.ba

CROATIA

Marija DESPALATOVIC
Senior Research Scientist
Institute of Oceanography and Fisheries
Laboratory for Benthos
Setaliste I. Mestrovica 63
21000 Split
Tel: +385 21 408046
Fax: +385 21 358650
E-mail: mare@izor.hr

Sanja MATIC SKOKO
Scientific Advisor / Senior Scientist
Laboratory of Ichthyology and Coastal Fisheries
Mestrovicevo setaliste 63
21000 Split
Tel: +385 21 408 030
Fax: +385 21 358 650
E-mail: sanja@izor.hr

CYPRUS

Spyridon ELLINAS
Agricultural Attaché
Alternate Permanent Representative
of the Republic of Cyprus to the UN Agencies
Piazza Farnese 44
00186 Rome
Tel: +39 06 6865758
Fax: +39 06 6868038
E-mail: faoprcyp@tin.it

EGYPT

Alaa Eldin EL HAWEET
Professor of Fishery Biology and Management
Dean of College of Fisheries Technology and
Aquaculture
Arab Academy for Science and Technology,
1029 Alexandria
Tel: +203-5836704
Fax: +203-5634115
E-mail: alaa.elhaweet@aast.edu

EUROPEAN COMMISSION

Joachim D'EUGENIO
Deputy Head of Unit
ENV C.2. Marine Environment and Water
Industry Unit
Directorate-General for the Environment
B-1049 Brussels, Belgium
Tel: +32 229-90355
E-mail: Joachim.D'Eugenio@ec.europa.eu

FRANCE

Benoit ARCHAMBAULT
Chargé de mission Affaires européennes
Bureau des affaires européennes et
internationales
Direction des pêches maritimes et de
l'aquaculture Ministère de l'écologie, du
développement durable et de l'énergie
Tour Voltaire – 1 place des Degrés – 92055
La Défense
Tel: +33 (0) 140818936
Email: benoit.archambault@developpement-durable.gouv.fr

Alain BISEAU
Team Leader
Fishery Assessment and Advice
IFREMER
Laboratoire Biologie Halieutique
Unité Sciences et Technologies Halieutiques
Département Ressources Biologiques
8 rue Francois Toullec
CS 15578. 56325 Lorient
Tel: +33 2 97873820 (direct)
Fax : +33 2 97873836
E-mail: alain.biseau@ifremer.fr

Sandrine VAZ
Institut Français de Recherche pour
l'Exploitation de la Mer
Mediterranean Fishery Unit
Station de Sète
Avenue Jean Monnet
CS 30171 – 34203, Sète
Tel: 00 33 (0)4 99573212 (Ext : 3212)
Fax: 00 33 (0)4 995732 95
E-mail : Sandrine.Vaz@ifremer.fr

GEORGIA

Maia CHKHOBADZE
Head of Biodiversity Control Service
Department of Environmental Supervision
Ministry of Environment and Natural Resources
Protection of Georgia
Tbilisi
Tel: +995 (32) 272 72 86
E-mail: maya_chkhobadze@yahoo.com

GREECE

Vassiliki Celia VASSILOPOULOU
Research Director
Hellenic Centre for Marine Research
Institute of Marine Biological Resources &
Inland Waters
Agios Kosmas, Helliniko, 16777
Tel:+30 2109856706
Fax: +30 2109811713
E-mail: celia@hcmr.gr

Pavlos VIDORIS
Fisheries Biologist
Hellenic Agricultural Organization “Demeter”
Fisheries Research Institute,
Nea Peramos, Kavala
64007ef Greece
Tel: +30 25940 22691-3
Fax: +30 25940 22692
E-mail: pvidoris@inale.gr

ISRAEL

Frederic ARZOINE
Deputy Director of the Marine and Coastal
Environment Division
Israeli Ministry of Environmental Protection
Tel: +972 48 63 3511
Mob: +972 50 623 7621
Fax: + 972 48 63 3520
E-mail: Freda@sviva.gov.il

Oren SONIN
Director of Fisheries Division
Department of Fisheries and Aquaculture
Ministry of Agriculture and Rural Development
Agricultural Center, Rishon-Lezion
P.O. Box 30,
Beit-Dagan, 50250
Tel: 972-50-6241658
E-mail: orens@moag.gov.il

ITALY

Oliviero MONTANARO
Dirigente
Direzione Generale per la
Protezione della Natura e del Mare
Divisione VI - Tutela dell'ambiente
marino e costiero
Ministero dell'Ambiente e della Tutela
del Territorio e del Mare
Via Cristoforo Colombo, 44
00147 Roma
Tel: +39 06 5722 8487
Fax: +39 06 5722 8424
E-mail: montanaro.oliviero@minambiente.it

Mauro BERTELLETTI
Dipartimento delle politiche competitive,
della qualità agroalimentare e della pesca
Direzione Generale della pesca marittima
e dell'acquacoltura
Ufficio: PEMAC I
Viale dell'Arte, 16 00144 Roma
Tel: +39 06 46652849
E-mail: m.bertelletti@politicheagricole.it

Alessandro MANNINI
Università di Genova – DISTAV
Dipartimento per lo studio della terra,
dell'ambiente e della vita
V.le Benedetto XV,3
16132 Genova
Tel: +39 0103538036
Fax: +39 010357888
E-mail: Alessandro.Mannini@unige.it

LEBANON

Imad LAHOUD
Department of Fisheries & Wildlife
Ministry of Agriculture
Beirut
Tel: +961 (0)1 849622
E-mail: ilahoud@agriculture.gov.lb

Constantine STAMATOPOULOS
Senior Scientific Associate
Institute of Environment
University of Balamand
Tripoli
Tel: +39 06 9360376
E-mail: cstamat@gmail.com

MALTA

Nicholas FLORES MARTIN
Scientific Officer
Department of Fisheries and Aquaculture
Fisheries Resource Unit
Ministry of Sustainable Development,
the Environment and Climate Change
Ghammieri, Ingiered Road
Marsa, MRS 3303
Tel: +356 2292 1251
E-mail: nicholas.flores-martin@gov.mt

MONACO

Jean-Philippe BERTANI
Counsellor
Embassy of Monaco in Italy
Via Antonio Bertoloni 36
00197 Rome, Italy
Tel: +39 06 8083361
Fax: +39 06 8077692
E-mail: jpbertani@ambasciatamonaco.it

Martine GARCIA
Embassy of Monaco in Italy
Via Antonio Bertoloni 36
00197 Rome, Italy
Tel: +3906 8083361
Fax: +3906 8077692
E-mail: mgarcia@ambasciatamonaco.it

MONTENEGRO

Nikol BAJCETA
Advisor to the Directorate for Fisheries
Ministry of Agriculture and Rural Development
Rimski trg 46
81000 Podgorica,
Tel: +382 20 482 270
Fax: +382 20 234 306
E-mail: nikol.bajceta@mpr.gov.me

MOROCCO

Najib EL OUAMARI
Institut National de Recherche Halieutique
Bd Zerktouni,
BP 493 Nador
Tel: +212673090519
Fax: +212536603828
E-mail: azir46@hotmail.com

SLOVENIA

Polona PENGAL
Fisheries Expert
Fisheries Research Institute of Slovenia
Spodnje Gameljne 61 a
1211 Ljubljana - Šmartno
Tel: +386 1 53 08 432
Fax: +386 1 24 43 405
E-mail: polona.pengal@zzrs.si

SPAIN

Antoni QUETGLAS
Researcher
Instituto Español de Oceanografía (IEO)
Centre Oceanogràfic de les Balears
Moll de Ponent s/n, Apdo. 291,
07015 Palma
Tel: +34 971 133 751
Fax: +34 971 404 945
E-mail: toni.quetglas@ba.ieo.es

TUNISIA

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

Sadok BEN MERIEM
Director of Agriculture Research
INSTM, Centre La Goulette
Port de Pêche
2060 La Goulette
Tel/fax: +216 71 73 58 48
E-mail: sadokbm@yahoo.fr

UKRAINE

Kostiantyn DEMIANENKO
Deputy Director
Research Institute of the Azov Sea (RIAS)
State Agency of Fisheries of Ukraine
Komunarniv str. 8
Berdyansk
Zaporizhzhie obl. 71118
Tel/Fax: +38 06153 36604
Email: s_erinaco@i.ua

ORGANIZATIONS

BLACK SEA COMMISSION

Iryna MAKARENKO
Pollution Monitoring and Assessment Officer
Permanent Secretariat Commission on the
Protection of the Black Sea Against Pollution
Maslak Mahallesi
Büyükdere Caddesi 265
Sarıyer, Istanbul, Turkey 34398
Tel: +90 212 299 2940
Fax: +90 212 299 2944
Email: irina.makarenko@blacksea-commission.org

ICES

Iñigo MARTINEZ
Ecosystems and Advice Professional Officer
International Council for the
Exploration of the Sea (ICES)
H.C. Andersens Boulevard 44-46
1553 Copenhagen V, Denmark
Tel: +45 3338 6752
E-mail: inigo@ices.dk

UNEP/MAP

Gyorgyi GURBAN
Ecosystem Approach Project Manager
United Nations Environment Programme
Barcelona Convention Secretariat
Coordinating Unit for the
Mediterranean Action Plan
Vassileos Konstantinou 48
Athens, Greece 11635
Tel: +30 210 7273105
Fax: +30 210 7253196
E-mail: Gyorgyi.Gurban@unepmap.gr

FAO

Gabriella BIANCHI
Fisheries and Aquaculture Resources Use and
Conservation Division
Fisheries and Aquaculture Department
Food and Agriculture Organization
of the United Nations
Viale delle Terme di Caracalla
00100 Rome, Italy
Tel +39 0657053094
Fax +39 0657053020
E-mail: gabriella.bianchi@fao.org

FAO REGIONAL PROJECTS

Enrico ARNERI
AdriaMed-MedSudMed Coordinator
Fisheries and Aquaculture Resources Use and
Conservation Division
Fisheries and Aquaculture Department
Viale delle Terme di Caracalla, 1
00153, Rome, Italy
Tel: + 39 06 57056092
Fax: + 39 06 570 53020
E-mail: enrico.arneri@fao.org

Nicoletta MILONE
AdriaMed Project Officer
Fisheries and Aquaculture Resources Use
and Conservation Division
Fisheries and Aquaculture Department
Viale delle Terme di Caracalla, 1
00153, Rome, Italy
Tel: + 39 06 570 55467
E-mail: nicoletta.milone@fao.org

Maria Teresa SPEDICATO
AdriaMed-MedSudMed Consultant
COISPA
E-mail: spedicato@coispa.it

SAC CHAIRPERSON

Othman JARBOUI
Directeur du laboratoire Sciences Halieutiques
Institut National des Sciences et Technologies
de la Mer (INSTM)
Centre de Sfax - BP 1035
3018 Sfax
Tunisia
Tel: + 216 74 497117
Fax: + 216 497989
E-mail: othman.jarboui@instm.rnrt.tn

GFCM SECRETARIAT

Abdellah SROUR
Executive Secretary
General Fisheries Commission
for the Mediterranean (GFCM)
Food and Agriculture Organization
of the United Nations (FAO)
Palazzo Blumenstihl, Via Vittoria Colonna 1,
00193, Rome, Italy
Tel.:+39 06 57055730
Fax:+39 06 57055827
E-mail: abdellah.srou@fao.org

Miguel BERNAL
Fishery Resources Officer
General Fisheries Commission
for the Mediterranean (GFCM)
Food and Agriculture Organization
of the United Nations (FAO)
Palazzo Blumenstihl, Via Vittoria Colonna 1,
00193, Rome, Italy
Tel: +39 06 57056537
E-mail: miguel.bernal@fao.org

Nicola FERRI
Legal and Institutional Officer
General Fisheries Commission
for the Mediterranean (GFCM)
Food and Agriculture Organization
of the United Nations (FAO)
Palazzo Blumenstihl, Via Vittoria Colonna 1,
00193, Rome, Italy
Tel.:+39 06 57055766
E-mail: nicola.ferri@fao.org

Pilar HERNANDEZ
Information Management Officer
General Fisheries Commission
for the Mediterranean (GFCM)
Food and Agriculture Organization
of the United Nations (FAO)
Palazzo Blumenstihl, Via Vittoria Colonna 1,
00193, Rome, Italy
Tel: +39 06 57056417
E-mail: pilar.hernandez@fao.org

Paolo CARPENTIERI
Consultant
General Fisheries Commission
for the Mediterranean (GFCM)
Food and Agriculture Organization
of the United Nations (FAO)
Palazzo Blumenstihl, Via Vittoria Colonna 1,
00193, Rome, Italy
E-mail: paolo.carpentieri@fao.org

Wasseem EMAM
Consultant
General Fisheries Commission
for the Mediterranean (GFCM)
Food and Agriculture Organization
of the United Nations (FAO)
Palazzo Blumenstihl, Via Vittoria Colonna 1,
00193, Rome, Italy
Mob: +39 370 129 2717
E-mail: wasseem.emam@fao.org

Philip GORMAN
Clerk
General Fisheries Commission
for the Mediterranean (GFCM)
Food and Agriculture Organization
of the United Nations (FAO)
Palazzo Blumenstihl, Via Vittoria Colonna 1,
00193, Rome, Italy
Tel: +39 06 57056369
E-mail: philip.gorman@fao.org

OBSERVERS

Pietro BATTAGLIA
ISPRA - Istituto Superiore per la Protezione e la
Ricerca Ambientale
Loc. Brondolo,
Chioggia 30015
Venezia, Italy
Fax: +39 0415547897
E-mail: pietro.battaglia@isprambiente.it

Alessandro BUZZI
Federcoopescas-Confcooperative
Rome, Italy
E-mail: buzzi.al@confcooperative.it

Roberto CROSTI
ISPRA/Dipartimento difesa della natura
Palermo, Italy

Clara MONACO
Marine Biologist
Ph.D. Student in Agro-Alimentary Economics
Via S. Sofia, 100
Catania, Italy 95123
Di3A - Dipartimento di Agricoltura,
Alimentazione e Ambiente
University of Catania
Tel: +39 095 7580352
Mob: +39 349 3618052
E-mail: clamonaco@unict.it

Saša RAICEVICH
ISPRA - Istituto Superiore per la Protezione e la
Ricerca Ambientale
Loc. Brondolo,
Chioggia 30015
Venezia, Italy
Tel: +39 0415543933
Fax: +39 0415547897
E-mail: sasa.raicevich@isprambiente.it

Michele SCARDI
Tor Vergata University of Rome
Rome, Italy
E-mail: mcardi@mcLink.it

Selected minimum set of indicators of the good environmental status of exploited populations

Selected set of indicators

- Spawning stock biomass
- Total landings
- Fishing mortality
- Effort
- By-catch of vulnerable and non-target species

Candidate indicators to be further tested

- Biomass index
- Large fish indicator
- Optimal length
- Mean trophic level