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MEDITERRANEAN ACTION PLAN

Meeting of MEDPOL experts
Marine Pollution Indicators to assess ecosystem stress
(Biological Quality Elements)

Athens, 12 October 2009

CONCLUSIONS AND RECOMMENDATIONS

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Results from the initial application of the Water Framework Directive (Directive 2000/60/EC), in the Mediterranean ecoregion, i.e. during the first phase of the Intercalibration (IC) exercise (Commission Decision 30/10/08) within the Mediterranean Geographic Intercalibration Group (MED-GIG), have been considered for possible indicators of ecosystem status assessment.

1. Chlorophyll-a has been used, within the MED-GIG, as a proxy-indicator for phytoplankton biomass using annual means of monthly collected data. The boundary values determined for the status classes required by the WFD namely between “good” and “moderate” status, in the framework of the MED GIG, for different water body types (“types” WFD sensus, Annex. II) can be tested by the non-EU Mediterranean countries to find out if they are relevant.
2. For chlorophyll-measurements, remote sensing could be used mainly in open sea waters. However, in some cases (MERIS) satellite images can be used for Chl-a monitoring in coastal water. This method is not yet mature to be used at large scale in the Mediterranean, but it has to be encouraged because it will provide a tool for continuous monitoring in the future.
3. The use of shoot density and depth lower limit of the *Posidonia oceanica* meadows has been used as an indicator for the state of the marine environment supported by several data in many Mediterranean countries. Within the MED-GIG some classification indexes, developed using different *P.oceanica* descriptors, have been tested and some have already been published. Their application is in progress; some EU Mediterranean countries are using them in new national monitoring programmes. Most of these data are in scientific literature and are not regularly reported as result of national monitoring programmes. SPA/RAC is also promoting the implementation of a monitoring programme for vegetation species in the framework of its Marine Vegetation Action Plan. Therefore SPA/RA and MED POL should collaborate on the collection of data from the countries. For this indicator (angiosperms) it was mentioned that in some coastal areas of the Mediterranean (eastern Med – Israel, Lebanon, Syria, and western Med – south-eastern Spain and Morocco), where *Posidonia* is not found, the angiosperm *Cymodocea nodosa* could be used (as for the rest of the Mediterranean), but until now, no monitoring data are available concerning this species. In conclusion it was considered that this indicator could be used immediately, only for *Posidonia oceanica*.
4. For the Macroalgae, a group of benthic organisms forming extensive and obvious habitats in shallow waters, used also as models in stressor-response experiments, the classification systems developed in the framework of MED GIG seem to be well tested and can be used as indicators in all Mediterranean hard substrates. These classification systems distinguish between functional groups and not species, thus their application does not need the presence of trained taxonomists and therefore they can be more easily implemented. Although several scientific groups are working on macroalgae in many Mediterranean

countries, such data are not usually available and not collected in the framework of national monitoring programmes. The application of this index could be recommended for all non-EU countries, however, some issues regarding macroalgal community variability at species and population levels needs to be further clarified and to be checked by groups.

5. The classification systems developed and tested on the macroinvertebrates, within the MED-GIG, can be used as indicators as they are robust methods using 1-2 samplings per year and can give good indication on the state of the marine coastal environment (on the soft bottom ecosystems). It is based on species and abundance lists prepared by expert taxonomists. The macroinvertebrate indicators tested in the framework of MED GIG seem to be well developed and is used as a standard method in soft bottoms in all EU monitoring programmes. However, the need of taxonomic expertise seems to be the major problem for the indicator's use, since the availability of taxonomists is limited in most Mediterranean countries. The indicator is probably not ready to be applied in the non-EU countries but it can be tested by scientific groups. The need of its use in standard monitoring will eventually prove imperative and will result probably in a new 'bloom' of taxonomists.
6. The decisions and recommendations of the meeting will be reported by the MED POL Secretariat to the Review Monitoring Meeting in Rome, as an element to be discussed in the framework of the development of the new MED POL monitoring strategy.

Annex I

LIST OF PARTICIPANTS

Croatia

Ms. Marija Despalatovic
Institute of Oceanography and Fisheries
Set. I. Mestrovica 63
21000 Split
Croatia

Tel: +38521 408046
Fax: +38521 358650
Email: mare@izor.hr

Cyprus

Ms. Marina Argyrou
Marine Environment Division
Department of Fisheries and Marine Research (DFMR)
Ministry of Agriculture, Natural Resources
and Environment
101 Bethleem Street
1416 Nicosia
Cyprus

Tel: +357 22807852
Email: margyrou@dfmr.moa.gov.cy

Egypt

Mr. Samir Nasr
Dean
Institute of Graduate Studies and Research
Alexandria University
P.O Box 832
Alexandria
Egypt

Tel: +203 4251038
Fax: +203 4285792-3
Email: Samir_nasr@yahoo.com

Mr. M. Dorgham
Professor of Marine Biology
Oceanography Department
Faculty of Science
Alexandria University
Egypt

Tel: +203 4843171, 5448982
Fax: +203 4911794
Email: mdorgham1947@yahoo.com

France

Ms. Christine Pergent-Martini
Expert
University of Corsica
Faculty of Science
Eq EL
BP 52
20250 Corsica
France

Tel : +33 495450055
Email: pmartini@univ-corse.fr

Greece

Mr. Sotiris Orfanidis
Associate Researcher
National Agricultural Research Foundation (NAGREF)
Fisheries Research Institute
Marine Ecology & Technology Lab
640 07 Nea Peramos
Kavala
Greece

Tel: +302594 029039
Fax: +302594 022222
Email: sorfanid@inale.gr

Ms. Kalliopi Pagou
Research Director
Hellenic Centre for Marine Research
46.7 km Athinon Souniou Avenue
Anavyssos
19013 Attiki
Greece

Tel: + 3022910 76409
Fax: +3022910 76347
Email: popi@ath.hcmr.gr

Mr. Panayiotis Panayiotidis
Research Director
Hellenic Centre for Marine Research
46.7 km Athinon Souniou Avenue
Anavyssos
19013 Attiki
Greece

Tel: + 3022910 76371
Fax: +3022910 76347
Email: ppanag@ath.hcmr.gr

Ms. Nomiki Simboura
Associate Researcher
Hellenic Centre for Marine Research
46.7 km Athinon Souniou Avenue
Anavyssos
19013 Attiki
Greece

Tel: + 3022910 76373
Fax: +3022910 76347
Email: msim@ath.hcmr.gr

Israel

Mr. Barak Herut
Director, Professor of Oceanography
Institute of Oceanographic and
Limnological Research
P.O Box 8030
Haifa
Israel

Tel: +972 4 8565221
Fax: +972 4 8511911
Email: barak@ocean.org.il

Italy

Ms. Gianna Casazza
Phase I - (MED GIG Coordinator)
ISPRA – Institute for Environmental Protection
and Research
Via Vitaliano Brancati 48
00144 Rome
Italy

Tel: +39 347 3568095
Email: gianna.casazza@isprambiente.it

Slovenia

Ms. Janja France
Expert
National Institute of Biology
Marine Biology Station Piran
Fornace 41
6330 Piran
Slovenia

Tel: +386 56 712934
Fax: +386 56 712902
Email: france@mbss.org

Turkey

Ms. Nihayet Bizsel
Professor of Marine Science
Dokuz Eylul University
Institute of Science and Technology
Baku Bulvan No. 100
Inciralti 35340 Izmir
Turkey

Tel: +232 2786515/135
Fax: +232 2785082
Email: nihayet.bizsel@deu.edu.tr

Ms. Evrim Kalkan
Department of Environmental Science
Institute of Environmental Science
Bogazici University
Hisar Campus
Istanbul
Turkey

Tel: +90535 8263535
Email: evrimkalkan@yahoo.com

Mr. Selahattin Unsal Karhan
Division of Hydrobiology
Dept. of Biology
Faculty of Science
Istanbul University
TR-34134 Istanbul
Turkey

Tel: +90 542 2530728
Email: unsalkarhan@yahoo.com

**UNITED NATIONS ENVIRONMENT PROGRAMME
COORDINATING UNIT FOR THE MEDITERRANEAN ACTION PLAN
MED POL**

Mr. Michael Angelidis
MED POL Programme Officer
48 Vas. Konstantinou Avenue
11635 Athens
Greece

Tel: +30210 7273132
Fax: +30210 7253196/7
Email: angelidis@unepmap.gr

Mr. Fouad Abousamra
MED POL Programme Officer
48 Vas. Konstantinou Avenue
11635 Athens
Greece

Tel: +30210 7273116
Fax: +30210 7253196/7
Email: fouad@unepmap.gr