5ᵗʰ Meeting of the Ecosystem Approach Coordination Group

Rome, Italy, 14-15 September 2015

Agenda item 3: Draft Integrated Monitoring and Assessment Programme

Recommendations of the Online Informal Working Groups on Pollution and Litter

Note from the Secretariat

In accordance with the decision taken at the 4th EcAp Coordination Group meeting held in Athens in October 2014, informal online expert groups on Eutrophication (**Eutrophication Working Group**), Contaminants (**Contaminants Working Group**) on and Marine Litter (**Marine Litter Working Group**) were established by the Contracting Parties with the leadership of Greece, Croatia and Spain, and France respectively.

The Informal Online Working Groups, following extensive consultations of nominated experts and under the guidance of the lead countries and the Secretariat, delivered their First Reports as well as a list of recommendations which were submitted as information and working documents to the Integrated Meeting of the Correspondence Groups on Monitoring held in Athens Greece 29 March – April First 2015 (UNEP(DEPI)/MED WG 401/Inf.8; UNEP(DEPI)/MED WG 401/Inf.9 and UNEP(DEPI)/MED WG 401/Inf.10).

Following the deliberations of the Integrated Meeting of the Correspondence Groups on Monitoring, the Informal Online Working groups continued their work and submitted the second drafts (UNEP/DEPI(MED)WG 417/Inf.15 along with a list of updated recommendations for the consideration of the MED POL and REMPEC Focal Points meetings in June 2015.

The MED POL and REMPEC focal points paid particular attention to a number of pending issues related to recommendations as well as the integrated monitoring guidance and assessment.

This report present the final recommendations of the informal online expert groups on Eutrophication Contaminants and Marine Litter as agreed by the MEDPOL and REMPEC FP meetings for the consideration of the EcAp Cooridnation Group.

RECOMMENDATIONS OF THE ONLINE INFORMAL WORKING GROUPS

I.   INFORMAL ONLINE WORKING GROUP ON EUTROPHICATION

1.   Proposedthresholds and methodological criteria for eutrophication assessment in Mediterranean.

Typology scheme

Typology is very important for further development of classification schemes of a certain area.The recommended water types for applying eutrophication assessment are based on hydrological parameters characterizing a certain area dynamics and circulation. The typological approach is based on the introduction of a static stability parameter (derived from temperature and salinity values in the water column). Such a parameter, on a robust numerical basis, can describe the dynamic behaviour of a coastal system. It is accepted that surface density is adopted as a proxy indicator for static stability as both temperature and salinity are relevant in the dynamic behavior of a coastal marine system. More information on typology criteria and setting is presented in document UNEP(DEPI)/MED WG 417/Inf.15.

In the Mediterranean a considerable number of eutrophication experts have built a typology scheme for the Mediterranean coastal waters during the first inter-calibration phase for the EU Water Framework Directive implementation, which is still in use after their update according to Commission Decision 2013/480/UE and represents a very simple typology approach that could be easily applied Mediterranean wide for coastal waters (sensu WFD, i.e. 1nm), since these coastal waters have been intercalibrated.. In this context the e major water types have been defined on the basis of surface density and salinity values as presented in Table 1:

Table 1 Definition of major coastal water types in the Mediterranean that have been intercalibrated (applicable for phytoplankton only) according to EU Comission Decision 2013/480/EU.

	Type I	Type IIA, IIA Adriatic	Type IIIW	Type IIIE	Type Island-W
σ t (density)	<25	25<d<27	>27	>27	All range
salinity	<34.5	34.5<S<37.5	>37.5	>37.5	All range

The different coastal water types, in an ecological perspective, can be described as follows:

- •   Type I   coastal sites highly influenced by freshwater inputs
- •   Type IIA   coastal sites moderately influenced not directly affected by freshwater inputs (continent influence)
- •   Type IIIW   continental coast, coastal sites not influencedaffected by freshwater inputs (Western Basin)
- •   Type IIIE   not influenced by freshwater input (Eastern Basin)
- •   Type Island: coast (Western Basin)

In addition, the coastal water type IIIwas split in two different sub basins, the Western and the Eastern Mediterranean ones, according to the different trophic conditions and is well documented in literature.

Some examples of Water Types presence finally defined for the European countries, Party to the Barcelona Convention and LBS Protocol are shown in the Table 2.

Table 2 Examples of coastal water types in some Mediterranean countries

New types		Croatia	Cyprus	France	Greece	Italy	Slovenia	Spain
	Description							
Type I	Highly influenced by freshwater input			X		X		
Type II	Moderately influenced by freshwater input	X		X		X	X	X
Type III WM	Not influenced by freshwater input	X		X		X		X
Type III EM	Not influenced by freshwater input		X		X			

Proposed recommendations

1. Contracting parties are invited to agree on the proposed criteria for typology of coastal waters as presented in Table 1.

2. Contracting parties are invited to apply the above criteria and define their coastal water types with the support from MEDPOL if needed, in the course of 2015.

2.   Thresholds and reference conditions for chlorophyll-a in the different water types

Reference and threshold (Good/Moderate status) derived values (G-mean annual values based on long time series (>5 years) of monthly sampling at least) differ from type to type on a sub-regional scale and were build with different strategies. Summaries values are given in Table 3.

Table 3. Reference and threshold values of Chla in Mediterranean coastal water types (according to Commission Decision of 20 September 2013 establishing, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, the values of the Member State monitoring system classifications as a result of the intercalibration exercise and repealing Decision 2008/915/EC).

Coastal Water Typology	Reference conditions of Chla ($\mu g \ L^{-1}$)		Boundaries of Chla ($\mu g \ L^{-1}$) for G/M status	
	G_mean	90 % percentile	G_mean	90 % percentile
Type I	1,4	**$3,33^{1}$ - $3,93^{2}$**	6,3	**$10^{1 \cdot} 17,7^{2}$**
Type II-FR-SP		1,9		3,58 – 3,6
Type II-A Adriatic	0,33	0,8	1,5	4,0
Type II-B Tyrrhenian	0,32	0,77	1,2	2,9

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[1] Applicable to Golf of Lion Type I coastal waters

[2] Applicable to Adriatic type I coastal waters

Type III-W Adriatic			0,64	1,7
Type III-W Tyrrhenian			0,48	1,17
Type III-W FR-SP		0,9		1,80 – 1,8
Type III-E		0,1		0,4
Type Island-W		0,6		1,2 – 1,22

Note 1: The 90th percentile and the geometrical mean can be derived one from the other according to the following equation:

$$\text{Chl-a } 90^{th}\text{ p.} = 10\textasciicircum(\text{Log}_{10}(\text{G\_meanChl-a}) + 1.28 \times \text{SD}).$$

Note 2: The MEDGIG exercise phase III is in progress, therefore an update of the above table may occur, which will be considered, accordingly.

Proposed recommendations

1. The Contracting Parties are recommended to rely on the classification scheme on chl-a concentration (μg/l) in coastal waters as a parameter easily applicable by all Mediterranean countries based on the indicative thresholds and reference values presented in Table 3.

2. However, for a complete assessment of eutrophication and GES achievement, GES thresholds and reference conditions (background concentrations) are needed not only for chlorophyll-a, but such values must be set,in the near future, through dedicated workshops and exercises also for nutrients, transparency and oxygen as minimum requirements.Nutrient, transparency and oxygen thresholds and reference values may not be identical for all areas, since is recognized that area-specific environmental conditions must define threshold values. GES could be defined on a sub-regional level, or on a sub-division of the sub-region (such as the Northern Adriatic), due to local specificities in relation to the trophic level and the morphology of the area.

3. Following the evaluation of information provided by a number of countries and other available information, it has to be noted that the Mediterranean countries are using different eutrophication non mandatory assessment methods such as TRIX, Eutrophication scale, EI, HEAT, OSPAR ,etc. These tools are very important to continue to be used at sub-regional or national levels because there is a long term experience within countries which can reveal / be used for assessing eutrophication trends.

4. However, in order to increase coherency and comparability regarding eutrophication assessment methodologies is recommended that further efforts should be made to harmonize existing tools through workshops, dialogue and comparative exercises at regional/subregional/subdivision levels in Mediterranean with a view to further develop common assessment methods.

II.   INFORMAL ONLINE WORKING GROUP ON CONTAMINANTS

Specific Recommendations of the Contaminant Working Group

1. Indicate sampling and analytical methodology to follow and assess biological responses in the Main elements of the Draft Integrated Monitoring and Assessment Programme for Ecological Objectives 5, 9 and 10 (UNEP(DEPI)/MED WG 417/6) based where appropriate on the relevant methodologies used in OSPAR or other fora;
2. Amend the UNEP/MAP Technical Report Series No. 120 with particular reference to the sampling period (case of fish) and sampling frequency (case of sediments) based where appropriate on the relevant methodologies used in OSPAR or other fora;

3. Assess and test in the coming years the convenience of normalisingmetal concentrations in samples from certain regions of the Mediterranean Sea when Aluminium, Iron and Organic content data from sediments would be available in MED POL database from possibly all Contracting parties);

4. Recommend mussel and fish LMS as mandatory biomarker and establish an effective data quality assurance and control as a crucial step to ensure reliable assessments

5. Follow the OSPAR approach of a "traffic light" system for both contaminant concentrations and biological responses, where there are two "thresholds" $_{T0}$ and $_{T1}$ to be defined (OSPAR, 2008; Davies et al., 2012);

6. Adopt background concentrations (BCs) and background assessment concentrations (BACs) of contaminants (for naturally occurring substances) in sediments obtained from the analysis of pre-industrial layers of dated sediment cores established for the Mediterranean region (UNEP(DEPI)/MED WG. 365/Inf.8) where appropriate based on data availability;

7. Use for indicative purposes the existing environmental assessment criteria (EACs) of contaminants in sediments and biota and of biological responses established by ICES/OSPAR until new ecotoxicological information is available including for Mediterranean species; (OSPAR, 2008; Davies et al., 2012);

8. Request the Contracting Parties and MED POL to further work and develop as appropriate new BCs and BACs of contaminants in sediments obtained by using data from sediments sampled at sites/areas which Mediterranean contracting parties consider being reference stations/areas to be defined based on commonly agreed criteria;

9. Request the Contracting Parties and ME POL to further work and develop new BCs and BACs of contaminants in biota (mussels and fish) obtained by using only data from organisms sampled at sites/areas which Mediterranean contracting parties consider being reference stations/areas to be defined based on commonly agreed criteria

10. Use the existing BACs and EACs of LMS, SoS, MN frequency and AChE activity biomarkers established (Davies et al., 2012) and further work to develop and discuss new BAC by using data from organisms sampled at sites/areas which the Mediterranean contracting parties consider to be reference stations/areas, to be defined based on commonly agreed criteria;

11. Extend and amend the existing reporting formats used for contaminants and biological responses in MED POL database to avoid gaps of the information required and to facilitate the proper assessment of environmental criteria;

12. Request the Secretariat (MED POL) to continue supporting the Online Contaminants Working Group for long term developments of activities dedicated to chemical pollution and development of assessment.

III. INFORMAL ONLINE WORKING GROUP ON MARINE LITTER

1. Proposed baselines values (Rationale for this proposal presented in document UNEP(DEPI)/MED WG 417/Inf.15

Indicator	minimum value	maximum value	mean value	Proposed baseline
16.**Beaches** (items/100 m)	11	3600	920	**450-1400**
17. **Floating litter** (items/km²)	0	195	3.9	**3-5**
17. **Sea floor** (items/km²)	0	7700	179	**130-230**
17. **Microplastics** (items/km²)	0	892000	115000	**80000-130000**
18. **Sea Turtle**s Affected turtles (%) Ingested litter(g)	14% 0	92.5% 14	45.9% 1.37	**40-60%** **1-3**

"It must be noted that the amount of existing information is limited to set definitive baselines that may be adjusted once the national monitoring programs could provide additional data. Moreover, Average values over large areas are difficult to harmonize, in particular for beach litter. Then, the setting or derivation of baselines should take the local conditions into account and may follow a more localized approach. Finally, additional specific baselines may be decided by CPs on specific litter categories especially when they may represent an important part of litter found or a specific interest (targeted measures, etc.).".

2. Categories of marine litter on the beaches

Regarding the categories of marine litter on the beaches, the Marine Litter Working Groupsuggests that the CORMON should agree on a reduced list (desirably close to that in use in the others RSC), which would include the items more frequently found on the Mediterranean beaches, avoiding those that are found rarely. Moreover, the lists of litter categories considered in countries having monitoring programs dedicated to two RSC (e.g. Turkey, France or Spain) would need harmonization. For this, the MSFD derived MEDPOL list is now compatible with other RSC lists of beach litter categories.

With regards to the MSFD form presented in the Marine litter chapter integrated monitoring programme document UNEP(DEPI)/MED WG 417/6, it is proposed to merge some types of beach litter (e.g. different types of plastic drink bottles or different types of caps/lids and rings, etc.), split glass and ceramic items categories, consider the sanitary and medical wastes as a separate category and not to include several specific items that have not appeared in the running Mediterranean countries monitoring programmes (e.g. Spanish Monitoring Program on beach marine litter, implemented from 2013 in the Mediterranean). In addition, the online group proposes to use for surveys a minimum lower limit of particle size at 0.5 cm (upper size of microlitter); UNEP(DEPI)/MED WG 417/6.

3. Proposed Marine litter environmental targets:

EcAp Indicators	Type of Target	Minimum	Maximum	Recommandation	Remark
Beaches (EI16)	% decrease	significant	30	20% by 2024 or [2030]	Not 100% marine pollution
Floatin Litter (EI 17)	% decrease	-	-	Statistically Significant	sources are difficult to control (trans border movements)
Sea Floor Litter (EI 17)	% decrease	stable	10% in 5 years	Statistically Significant	15% in 15 years is possible
Microplastics (EI 17)	% decrease	-	-	Statistically Significant	sources are difficult to control (trans border movements)
Ingested Litter (EI 18) Number of turtles with ingested litter (%)	% decrease in the rate of affected animals	-	-	Statistically Significant	Movements of litter and Animals to be considered
Amount of ingested litter	% decrease in quantity of ingested weight(g)	-	-	Statistically Significant	

4.   Other recommendations

SCALE	**Common baselines** for the various EI (16, 17, 18) must be considered at the level of the entire basin (Mediterranean) rather than at sub regional level
RESEARCH	Need to **define an adapted protocol for microplastics(< 5mm) in sediments**
	Research to **support the development of an indicator dedicated to entanglement**
BASELINES/ TARGETS	**Consider specific baselines and targets** for litter categories that are individually targeted by reduction plans or measures by the Contracting Parties (cigarette butts, plastic bags, cotton buds, etc)
CATEGORIES	**Consider the reduction of the number of items** in MEDPOL monitoring protocol
	Adapt MEDPOL master list, MSFD derived, to harmonize with other RSC
MONITORING	**Needs for adjustment of the monitoring guidance** (more compatible definitions and wording, list of items/categories)
	Harmonization of the ECAP monitoring Guidance with the online group report and recommendations
SUPPORT	
MONITORING	**Consider the relevance of ML for monitoring marine pollution** (lower costs, possible harmonization, easy protocols), especially on beaches, when compared with other approaches (e.g. analysis of contaminants)
	Support evaluation/adjustments of baselines/targets on the basis of the first monitoring results
	Improve knowledge on experimental indicator EI 18, **Support capacity building and monitoring experiment on sea turtles at a pilot scale**
QUALITY ASSURANCE	As the Mediterranean Action Plan on ML is based on measures and monitoring **efforts should be shouldered by quality control/quality assurance** (training, inter-comparisons, use of reference material for microplastics, etc.) to assist survey teams.
DATA MANAGEMENT	**Data base is to be organized** for the collection of data
Secretariat	Continue support for the ML **expert group** for long term developments of activities dedicated to Marine Litter, trends analysis and analysis of data from countries (art 11 of the MLRP)
	Consider **capacity building** in long term, in support of the MLRP (training, inter-calibrations, etc.)