

MSFD GES Technical Subgroup on Marine Litter (TSG ML)

Minutes of the second meeting, Stareso Marine Station, Calvi, 18-20.04.2011

Drafted by Henna Piha

The second meeting of the MSFD GES Technical Subgroup on Marine Litter (TSG ML) was held at the Stareso Marine Station, Calvi, 18-20/04/2011. The meeting was chaired by Francois Galgani (Ifremer, France) and co-chaired by Georg Hanke (EC JRC) and Stefanie Werner (UBA, Germany). The meeting was organised by Francois Galgani on behalf of Ifremer. The main aim of the meeting was to review the current status of each task and to agree on the steps to take in order to produce the final report and other deliverables by the end of 2011. During the meeting draft tools for each indicator were produced.

Update on WG GES and Commission activities (Leo de Vrees, DG ENV)

At its last meeting (05.04.2011), WG GES had requested advice from the TSG ML on setting up GES for marine litter. Member States (MS) would like to have these recommendations by the next WG GES meeting in July. An initial MSFD assessment workshop dealing with the relationship between the initial assessment of marine waters and the criteria for Good Environmental Status will be held on May 10.

On 8 November 2010, the COM had organised a workshop on marine litter ("Marine Litter: Plastic Soup and More"). On the basis of this meeting an Action Plan was developed: what can be done on production, prevention, responsibility of producers, etc. Tasks have been identified on research, coordination, etc. There is keen support from Council & MS to contribute. The Action Plan has been sent to the Commissioner – there are 25 actions, one of them contributes to the Global Action Plan on litter (together with NOAA and UNEP), link to Rio +20, and others. Additionally, a Green Paper on waste in the environment will be developed by the Waste Unit of the COM. The possible regulatory action against the use of plastic bags will be one of the issues covered. A draft of the document is anticipated by the end of June 2011 and it will be sent for consultation to MS.

General issues and organisation

The main outputs of the group will be a toolbox and a roadmap by 2011. A draft for a tool sheet template has been uploaded on Basecamp. The aim is to produce a box full of tools that MS may apply to achieve adequate and harmonized monitoring and assessment of Marine Litter in their Regional Seas. There are 3 types of tools: 1) ready to use, 2) need to be improved, 3) need to be developed. Everything else not related to the tools directly is part of the roadmap. A general understanding of its contents, scope and vision needs to be developed and a timeline for the deliverables should be produced.

The web-based communication site Basecamp is the main forum used by the group for developing the tools and roadmaps. It was agreed that in general, notifications will be sent to all group members when uploading documents/sending mails etc. Those notifications that require specific attention/action could be assigned to an own group such as "URGENT".

Review of the status of tasks

Task 1 (Available data and methodologies)

Henna Piha presented an overview of the current status of Task 1. Information for the questionnaire on available data and methodologies has been received from 36 organisations and some are still pending. It is probable that the majority of/all relevant methodologies are covered by now, and hence the data can well be used in the development of tools. However, there are still gaps in regional coverage. In order to more easily identify possible data gaps, it was decided that a new table with MS, sources and data will be developed and uploaded to Basecamp for members to check for missing data. It was also agreed that participants should give acronyms for the projects.

Task 2 (Beach - Marine Litter Toolbox elements)

Lex Oosterbaan presented an overview of the current status of Task 2. An overview table had been prepared by Barbara Wenneker for the identification of available methodologies. In general, the approaches used by OSPAR and HELCOM are well developed, but on the Mediterranean and Black Sea there is still limited information on experiences. It is not clear how and where UNEP/IOC marine litter guidelines are implemented. NOAA has an approach which is based on densities (draft available on Basecamp). Ocean Conservancy has practical experience which is also well documented. In the table, pros and cons, problems and experiences per methodology are/should be described. The table is completed for OSPAR and partially for HELCOM and hence members of the group are requested to fill in the missing information.

First conclusions/recommendations arising from the overview and discussions:

- A “common best practices” method should be extracted based on the conclusions including a list of products that need further (regional) development
- A basic set that deals with all requirements should be given to MS
- 100 m seems to be a practical length for a stretch
- Counting items (including reporting barcodes) looks to be the most informative for measures (as well as most practical).
- Initial surveys should be as extensive as possible: counting all litter in the 100 m stretches (no minimum size), minimum of four surveys per beach per year (seasons). Several beaches per country/region; total number of surveys/beaches could be reduced over time
- The option of cleaning/not cleaning beaches should be left open
- Monitoring programs should not be based on unpaid volunteers. Implementations of the MSFD should enforce the MS to support and ascertain that monitoring continues (even when on voluntary basis).

On the issue of counting items/measuring weight, it was discussed that comparable measurements are needed and that both number of items and weight are useful units. It was argued that in order to combine different litter items (among years) and achieve statistical rigour was by using weight, and hence the suggestion for having agreed average weights for litter items was given. The suggestion to use of more complex indicators/categories with weighing factors related to harm was given. It was agreed to count items and convert these into weight.

Minimum size was agreed to be 0 - 2.5 cm (used e.g. in OSPAR). It was highlighted, however, that cigarette butts need to be covered (a problem identified particularly in the Mediterranean). It was also highlighted that there is a major monitoring gap between 5mm and smaller as sampling unit for microparticles and 2,5 cm and bigger as sampling unit for macrolitter, which needs to be addressed, On the selection and number of beaches it was discussed that selection depends on what we want to demonstrate. If possible, would be worth choosing beaches near to riverine sources. With regard to quality assurance, training of volunteers and communication were seen important (photo guides, survey forms, beach questionnaires). E.g. photo guides can be easily developed for the marine regions. For statistical trend analyses no sufficient method exists. Both NOAA as well as a German R & D-projects are developing methods– the group will wait for results from these and see if these could be incorporated into the toolbox.

Task 3 (Water column & surface - Marine Litter Toolbox elements)

Georg Hanke presented an overview of the current status of Task 3. The following tools were agreed upon: surface trawls (Mature, harmonisation needed); visual observation ship (Mature, harmonisation needed); visual observation air (Mature, harmonisation needed); camera survey (Development needed); and filtration and pelagic trawls. It was noted that standards are needed e.g. in terms of weather conditions. Also it was highlighted that it is necessary to make certain that the UNEP guidelines are considered here. The use of fulmars for surface water litter assessment was also discussed, and it was concluded that it may be clearer for the MS if this indicator is related only to biomonitoring (in accordance with the COM Dec).

Water column methods for litter > 5 mm were identified to go more to the research side and hence a tool cannot be offered at this stage. The group can, however, provide a protocol and highlight that more research/projects of the MS are needed.

It was agreed that upper and lower boundaries are needed for the different monitoring tools. For the lower size boundary, the group agreed to recommend routine monitoring with the size range from 330µm to 5 mm. The size fraction below, as e.g. between 80 µm - 330 µm appears more relevant for research. There was no clear conclusion on the upper size limit, as this depends mostly on the statistical probability of encountering items of a certain size. It was also agreed that the group must suggest ranges (transect lengths, etc) in the tools. Apparently there could be a gap in the litter sizes monitored by trawls and those monitored by visual surveys from ships or planes. A camera system might help to overcome this gap. There was no clear conclusion on the units to be reported, with number and weight being the options. For survey frequency, it was considered if the same frequency as is suggested for beach litter (4 times a year) would be appropriate for this indicator as well, and it was concluded that a frequency of 2-4 times per year could be recommended. This would relate to seasonal changes, also source related. It was highlighted that the group should emphasize the need to establish research to further develop the indicator, as for many of the issues there is currently simply not enough information.

With regard to aerial surveys it was agreed that this approach can be supported; although it may be expensive, it offers large areal coverage and allows e.g. to correlate with shipping activities and compare to shipping densities etc. giving plenty of useful information. As it is unlikely that aerial surveys for litter can be done for this single purpose, it was discussed how far litter monitoring is compatible with other assignments during surveys. This issue could be further developed in the research and development section.

Observations from ships are commonly done, though not with harmonized protocols. No common agreement was reached on the suitability of ship-based distance sampling in comparison to transect sampling – some against (problem of developing appropriate detection curves due to large variance), some for (not a problem to use distance sampling as the vessel can be incorporated as a covariate).

In conclusion with regard to the roadmap, it was agreed to draw a map of certain issues and of those that are uncertain. The latter would go for the research needs.

Task 4 (Seafloor - Marine Litter Toolbox elements)

Francois Galgani presented an overview of the current status of Task 4. There are currently no coordinated national or regional monitoring programmes for litter on the seabed within Europe. Only some experimental monitoring in some countries has been described. However, there are monitoring programs for demersal fish stocks undertaken as part of the International Bottom Trawl Surveys and regional bottom trawl surveys such as the annual sole and plaice surveys in ICES waters that can provide information on the amount and composition of litter on the seafloor. There is currently no quality assurance program for litter on the sea floor. Importantly, the monitoring of litter on the sea floor must consider accumulation processes for past decades.

The most commonly used method to estimate marine debris density in shallow coastal areas (< 40 m depth) is to conduct underwater visual surveys with SCUBA. For shallow coastal areas the group proposes two methodologies – plot sampling and distance sampling. When densities of litter are very low or there is high turbidity or high habitat complexity, distance sampling is suggested as this takes into account detectability, whereas plot sampling is for higher litter densities, low turbidity-low habitat complexity cases. The proposed size of the sampling units is dependent of litter density. It was discussed that annual or biannual monitoring would be needed from a fixed set of stations. Monitoring should be streamlined with monitoring requirements coming from MSFD Descriptor 6 (Seafloor integrity). The previous work of the AWARE project has been mentioned as relevant for shallow water subsea monitoring.

For the shelves four major international trawl surveys exist: the International Bottom Trawl Survey (IBTS), the Baltic International Trawl Surveys (BITS), the Beam Trawl Survey (BTS) and Mediterranean Trawl Survey (MEDITS). They are dedicated to fish stock assessment but may be used for litter data collection. The suggested strategy would contain for trawling the sampling of 0.2 (beam trawling) – 1-2 hectare areas using standardized nets (20 mm mesh, etc.) at fixed locations. From a count every year (shallow waters) to one count every 5 years or decade (deep sea floor). The use of harmonised categories (7 + 1) is supported. For the deep sea floor the suggestion would be to prioritize on a national/international basis to very specific deep sea areas (Norwegian trench, Cap

Breton canyon, Canyon of Lisbon, large towns in the Mediterranean) by the use of remote cameras and/or submersibles. Monitoring of litter must be co-organised with ICES/IBTS and MEDITS in relation with STEFC. Use of DATRAS for collection of data (link to task 9).

Agreed modifications to the task 4 report:

- shallow waters: discuss existing programs (Aware, marine protected areas monitoring experiments) and their possible links with the monitoring of marine litter
- Shelves/deep sea: discuss the weight/number issue
- Fishing for litter: explain why it is not useful for the monitoring of litter.

Task 5 (Biota - Marine Litter Toolbox elements)

Henna Piha presented an overview of the current status of Task 5. Currently the fulmar EcoQO is the only mature indicator for ingested litter. It has been developed for the North Sea but applicable to most NE Atlantic. It is, however, not applicable to the Baltic, Mediterranean, Black Sea, and southern parts of NE Atlantic. Hence, for these areas alternative indicators must be developed. On the basis of available information and expertise, the group has chosen to focus on the further development of the following indicators:

- The shearwater; should be applicable to the southern parts of NE Atlantic and to parts of the Mediterranean
- Sea turtles; if monitoring programmes can be established, could be applicable to the Mediterranean and the Black Sea
- Seals; further investigation of the applicability of by-caught seals for ingested litter monitoring. These would cover the Baltic and the NE Atlantic. If seals prove to be effective in the Baltic, sporadic trials in other regions could be carried out.

Spatial/regional overlap among the suggested indicators was seen positive, as to allow for comparisons/harmonisation among marine regions. Trials for plastic in fish have been carried out in the North Sea, which currently indicate that incidences of plastic in fish are too low to be useful for monitoring purposes. However, to further investigate the possibility of using fish as indicators, it is suggested to look further into this issue and to ask at ICES if an upcoming "Year of the stomach" could be used for that matter. Suitable species could be sand eel, sprat, herring or sardines. It was also agreed that other aspects (impacts of ghost nets, entanglement) should be considered in the research part.

Task 6 (Microlitter – Marine Litter Toolbox elements)

Thomas Maes on behalf of Richard Thompson presented an overview of the current status of Task 6. With regard to monitoring methods for microlitter, The Continuous Plankton Recorder (CPR) is applicable to sampling from the subsurface water and can provide a long standing time series. The approach captures material at ca. 5 m depth; the minimum size captured depends on mesh size. A shoreline sampling method is currently being tested and developed by NOAA where microplastics are sampled from the same sample as larger items. This approach could be used for the beaches. For the seafloor, there is a method under development. The importance of sources was also discussed. The lack of monitoring in industrial areas/water treatment plants for microplastics is an issue that was identified to be included in research needs. It was concluded that on the basis of current knowledge, the group may suggest protocols for surface and shorelines, but additional research is needed for the water column and seafloor. It was agreed to develop the tool sheets in the according matrix tasks (beach, sea surface, etc.).

Task 7 (Objectives and targets)

Stefanie Werner presented an overview of the current status of Task 7. The team for task 7 had scanned available background information/literature for any GES-determination and target setting and existing objectives both within and outside the MSFD implementation process. The general discussion based on some identified main question in relation of the determination of GES and related targets for D 10 dealing with overlaps with other directives/policies, the setting of quantitative or qualitative objectives, the aggregation of indicators within the descriptor, the degree of ambition in goal setting, the possibility of identifying danger/harm-categories for different materials of ML, the setting of operational/intermediate targets focusing on reduction, prevention and removal based on source identification and the weight of socioeconomic analyses when defining GES.

It was highlighted that targets need to be achievable. As a requirement, a good baseline needs to be defined and from there a big enough decrease, e.g. the years 2005-2010 would be used for baseline and a decrease from there by 30-40% by 2020 could be set as a possible target. However, without knowing the sources, such targets cannot be reached. Identified measures are needed to reach such targets. Objectives and targets should guide towards such measures. The role of operational indicators was also discussed. In addition to targets, which are linked to the indicators, there are operational indicators which are more linked to specific sources. Further development of associated indicators for operational targets and recommendations on actions could perhaps be an issue for the group for 2012 (if the group were/is to continue functioning).

Task 8 (Sources)

John Mouat presented an overview of the current status of Task 8. The importance of defining source was clearly highlighted. The group should identify which are the most important source categories (e.g. according to litter category, production origin and/or geographical origin). It should also be decided how much extra effort we go into quantifying sources. For example beach litter monitoring records the category of item but it should be decided if more information such as the language of text or bar-code also needs to be recorded. To identify source categories for e.g. shipping, tourism, it is important to identify indicator items (as in the OSPAR monitoring protocol). However, it is currently not clear if methodologies for this exist or should guidance be developed. Some modelling/backtracking techniques have been identified already, but other potential options should also be reviewed. There is particularly the need to upload info on the sources of the MED and BS (and Baltic) so that the targets can be based on these.

The beach litter monitoring is to be a major tool for providing info on sources. The seafloor could as well. When looking at the seafloor close to the coast, it is easy to identify the sources. But even there transport can have an effect, particularly at deep sea. It was discussed whether more effort should go into making items and their sources more identifiable, such as marking fishing gear and whether chemical analysis could be used to identify the source of pre production pellets. The experience from OSPAR (pilot project) is that detailed source information was collected for two years but this could not be used in a useful manner.

The source issue is considered by the group to be a very complicated one. Further work must be conducted by the group in order to reach recommendations on sources. It is likely that there will be problems that can be solved at the national level and those which at a more regional level, even beyond EU. These levels have to be taken into consideration. Also the different aspects of monitoring have to be taken into consideration with regard to source identification. It was agreed that guidance of the potential sources needs to be given to MS. E.g. a list of the main sources would give the countries a tick list that they could use. It was recognised that a timescale for providing info of source is needed for the WG GES report. Hence this info should be provided very soon from the group members to this task.

Task 9 (Reporting and data treatment)

Reporting for the MSFD will be done through the WISE MARINE system. It is important to prepare the technicalities of data units, metadata and related quality assurance/quality control (QA/QC) issues. The EEA is currently involved in the discussions with DG ENV on the reporting sheets development for the MSFD (Art 8, 9 and 10), and at the EEA there is currently a WISE-marine review undergoing. EEA will be getting the data and information from the initial assessments and monitoring programs set by the MS. It will need to ask for metadata to make data sets available and searchable. The proposal should also be based on the lowest common denominator, in order to assure that it is operational at an EU scale. Likewise, any type of georeference data needs to be Inspire compliant. This is not so easy to understand and hence EEA and ICES are working with the Inspire in order to get an overview of the Inspire developments for marine data to see how this could fit into the MSFD reporting sheets requirements. As there is currently no harmonised set of data reporting parameters and metadata, also the use of common approaches for quantifying marine litter by the scientific community should be encouraged. With EMODNET currently being developed as a portal for accessing environmental data in the marine environment a module for Marine Litter data might be useful.

As example for the identification of relevant data attributes, the set of data elements developed by INERIS for the reporting of chemical substance concentrations under the WFD has been uploaded on Basecamp. A similar task should be done by the TSG ML.

As QA/QC will need to be an integral part of the toolbox development, the idea of suggesting intercalibration exercises for the MS was also discussed. It was seen that coherence is something that is definitely aimed at, but the tool of intercalibration might be too tough a requirement for MS. Therefore much more responsibility lies with the Commission when streamlining GES and targets as chosen by the MS. Intercalibration was seen possible for microlitter and perhaps birds. ICES might support practical exercises.

Task 10 (Research needs)

Francois Galgani presented an overview of the current status of Task 10. The definition of GES and the objectives by 2020 and related monitoring require a thorough understanding of mechanisms and processes associated with litter at sea. This requires considerable research with underlying objectives:

- Clarify any fundamental research gaps required to link quantities of litter and associated harm in the context of GES
- Within the MSFD context, research must be conducted at the region/sub region to give a scientific and technical basis for large scale monitoring
- Research must define priority areas
- Harmonisation and coordination are required for common and comparable monitoring approaches
- Research will support guidelines to assess GES on a regional/European scale.

The achievement of these goals requires significant upstream work on various aspects including of waste at sea. One important issue is to understand factors influencing the localisation of litter at sea. Another are factors influencing degradation processes including environmental consequences of microplastics. The ecological impact on marine organisms is also very important as are the socio-economic impacts of litter. Novel methods and automated monitoring devices need to be developed. In the marine environment we are obliged to work/consider large scale issues. The rationalisation of monitoring needs to be considered such as recent developments (use of balloons for beaches, link oceanic models and coastal models).

Leo de Vrees informed that at the COM there are currently a number of initiatives dealing with litter research. There will be FP7 research calls as part of the OCEANS FOR TOMORROW coordinated call by DG RTD. One call is dedicated to marine litter (envisaged (draft) 6 million), Projects from this year's call are likely to start end 2012/begin 2013. Next year will possibly focus on offshore monitoring devices. Marine research will also be one of the subjects identified in the Joint Programming Initiative. In this initiative MS are agreeing to rearrange their research priorities in the EU Member States. It is good to have the list of priority research questions also for the MS to support national research initiatives. It was also considered, that close linkage and cooperation with running and planned national research projects for the national implementation of D10 should take place.

As one of its next tasks, the task group agreed to go through the prioritisation of research questions and develop a timeline for what should be done quickly and what could wait for later OR what takes longer. It was noted that support for the development of tools should be given priority at this point.

Report on the 5th IMDC

A review on the outcome of the 5th International Marine Debris Conference was given by Sarah Morison. The meeting took place March 20-25, 2011, in Honolulu, Hawaii. NOAA and UNEP co-organized the conference, which brought together 440 participants representing 38 countries. A major outcome of the meeting was the Honolulu strategy, which sets forth a results-oriented framework of action with the overarching goal to reduce impacts of marine debris over the next 10 years. This goal will be achieved through the collective action of committed stakeholders at global, regional, country, local, and individual levels. The strategy was open for comments until April 8. Currently it is being readdressed based on the received comments. The second draft will be sent for public comment late May/early June.

Leo de Vrees informed that there is discussion to get marine litter on the Rio +20 agenda, in which there is a chapter on oceans and a chapter on waste. The idea would be to get as a cross cutting issue an action plan, based on the Honolulu strategy. UNEP will provide a roadmap (various meetings coming) for the steps to take before Rio +20.

Other issues

During the meeting it was discussed if there were particular issues that should be brought to the WG GES (other than the response to their request regarding objectives and targets, e.g. requesting countries not present in the TSG for existing monitoring of biota impacted by ML). It was seen that for the assurance of spatial coverage the WG GES could be contacted, however, at this stage the WG GES will not be addressed with regard to filling data gaps. Instead the group will be in touch with its expert contacts to obtain missing information. WG GES could be used in order to obtain information of the type of research that is currently conducted with fish (related to the bioindicator development of Task 5). It was noted that DG MARE needs to be informed of the need to establish seafloor monitoring.

It was also agreed that the group will take on board NGOs conducting voluntary surveys/monitoring. Monitoring under the MSFD is the responsibility of MS, but it was agreed that monitoring protocols should be preferably such that they can also be adopted by NGOs in order to create meaningful data.

Response to WG GES on the question of target setting

The group agreed to produce a report to the next WG GES meeting as a response to their request for anticipated guidance on setting objectives and targets. Stefanie Werner will draft a general synthesis from the Task 7 presentation given by her at the meeting (see Basecamp), and on the papers by UK, DE and NL of how these countries are approaching the issue of targets and GES for the group to comment. In principle, recommendations for targets should be made regionally. At the MS level there is knowledge of sources, and operational targets should be suggested to tackle these sources. Here the Task 8 on Sources could provide input to the report. The report should converge into questions that are still open, but if these seem to be similar (On baseline, setting targets, linking to sources), these could be addressed.

The group sees that it is not in its mandate to come up with final targets. However, it was discussed if the report could include a range of targets with explanation what that would mean. 0 litter or 20% decrease of litter – how is it related to baseline etc. This would aid countries in choosing their targets. The problem with this approach may be, however, that a baseline is not defined for many of the indicators. It was nevertheless seen that the group should include explanations in its report and highlight that this is the current situation, and the MS have to start with something.

Next steps

The next TSG ML meeting will be held 12.-14.10.2011 in Varna. Marine Directors will meet end of November. In Varna, the final report will be reviewed and the content of the report should be finalised shortly after. The framework for the writing of the report has to be given by the chairs to the group. The dissemination of the report will still have to be looked at – e.g. will the tools be published additionally as separate sheets. The report should be delivered to the next Marine Directors meeting. Hence the report has to be finalised by the 1st week of November. Recommendation of the group's continuity should be produced by the same deadline as well to DG ENV.

The roadmap developed by the group should also allow discussing the eventual need of a further mandate by MS to the TSG Marine Litter. While the decision on this will be taken by the Marine Directors, preparatory work must be done in 2011 and the availability of the involved parties should be clarified beforehand and discussed with DG ENV. It was agreed to welcome Marco Mattiddi (I.S.P.R.A.) and Ania Budziak (Project AWARE) to Basecamp.

Milestones

The chairs will develop the framework for the report, deadline in 2 weeks.

Same deadline for the tool sheet templates and Task 1 Update list.

An interim report from TSG ML to WG GES (30.6.-01.07.), ready 2 weeks prior to the meeting.

Anticipated info on task 7. Same schedule. Uploaded to Basecamp for comments. Comments should be received within one week.

The third meeting – please start checking logistics. Preparations for holding the third meeting in Varna, Bulgaria will start.

Work of the group will continue on Basecamp by setting milestones, “To Do ” lists. Task groups are encouraged to further develop their work along the agreed lines. Contacts by phone, meeting or web videoconferences are encouraged. Information about upcoming marine litter related meetings and events on Basecamp is welcome. KIMO offered support for a limited number of web conferences and JRC will check availability for support.

The tool development (Beach, Sea surface, Sea floor, Biota, all including microlitter)

Predrafting done 20.4.

1st draft TS mid June

2nd draft end July

3rd draft 1.10.

First week November 2011 final draft should be there together with a final list of questions that need to be answered.

Thanks

The participants thanked Francois for organisation of the meeting and the STARESO team for the perfect housing and support!

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