Marine Strategy Framework Directive

Common Implementation Strategy

Technical Group on Marine Litter (MSFD TG Litter)

Gothenburg, Sweden

Document:	13th meeting of the MSFD Technical Group on Marine Litter (MSFD TG Litter) (26th – 28th June 2019, Gothenburg, Sweden
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13th Meeting of the MSFD Technical Group on Marine Litter
(MSFD TG Litter, TGML)

26th – 28th June 2019, Gothenburg, Sweden

FINAL MINUTES

Note: Actions agreed during the meeting appear in bold in the text below.

DAY 1 – 26th of June

Item 26-00 Welcome and approval of the agenda

Mia Dahlström, on behalf of SwAM, Marine Management, and Sweden welcomed the TG Litter group in Gothenburg. Stefanie Werner (UBA), on behalf of the TGML chairs, welcomed the participants and opened the 13th TGML meeting. The meeting was co-chaired by Georg Hanke (JRC) and Francois Galgani (IFREMER). They welcomed all MS Delegates and the EC desk officer of TGML, Michail Papadoyannakis from the European Commission, Marine Environment and Water Industry Unit at DG Environment.

The TGML chairs presented the agenda and aim of the meeting. The participants approved the Draft Agenda of the meeting, followed by a round-table introduction of participants. Stefanie Werner further highlighted that a revision of the working process might be needed due to the high interest in the subject. 45 participants attended the meeting (Annex 1). She invited the participants to reflect on two main questions that will be further discussed during the meeting:

- How to make maximum use of TGML, considering the increased size and changed composition of the group? Do we need to consider the possibility to split in technical versus coordination meetings?
- How to make the process more efficient and operational, e.g. through registration linked to logistic issues, provision of more preparatory documents, respecting deadlines, improvement of balance between discussions and information, etc.

The background documents and presentations are available on the TGML WIKI (Organisation_Gothenburg Annual Meeting).

Item 26-01 Presentation of MSFD D10 & Plastics Strategy

Michail Papadoyannakis (DG ENV) thanked Sweden for hosting the meeting and TGML for its important contributions regarding the establishment of the EU top litter items list of high relevance for the impact assessment of the Commission proposal on Single Use Plastic (SUP) products and Fishing Gear (FG). The newly adopted Directive (5 June 2019) related to SUPs and FG complements the measures already envisaged by the EU Plastics Strategy (focus more on microplastics), and includes bans, capture rates of SUPs and EPR, annual collection, reporting, monitoring, retrieval, marking of fishing gear. Biodegradable materials are banned in the SUP/FG Directive, under the consideration that there are no plastic materials which are biodegradable in the marine environment; a review clause for taking into account technical progress and innovation has been introduced. Further attention was drawn to new waste legislation with explicit obligation for MS to consider ML and revise the management plans in coherence with MSFD. The revision of fisheries control regulation e.g. extending the electronic reporting to all vessel categories, the need for retrieval material on board and extending the marking of gear to recreational fisheries was further highlighted. Regarding microplastics, specific measures are included in the EU Plastic Strategy: possible restrictions through REACH for intentionally added microplastics in products and oxo-plastics as well as measures for micro-litter from other sources (tyres, textiles and plastic pellets) including harmonization, labelling, certification, permitting. The scope of the REACH process was presented in detail, emphasizing that health and environmental risks posed by intentionally added microplastics justify an EU-wide restriction, which could be in place by 2021 (ECHA opinion expected mid 2020). Further actions stated by DG ENV relate to urban wastewater (e.g.

need for revision based on study launched soon), aquaculture (e.g. certification, BAT, recent working group on ML) and shipping (e.g. amended PRF, no-special fee provisions). The presentation was concluded with possible additional TGML contributions to follow-up the EU Plastics Strategy, which might be reflected in the TGML work programme of the forthcoming Common Implementation Strategy:

- Connection of MSFD D10 with waste prevention/management plans and Water Framework Directive, for example in terms of additional monitoring requirements
- Modelling against lack of data e.g. for designing measures and assessing their effectiveness
- Micro-litter, in particular monitoring protocols, non-intentionally used, pellets
- Identification of focused research and technological development needs to support implementation of MSFD D10 and Strategy for Plastics
- Emerging issues, such as litter from aquaculture

Maris Stulgis (DG MARE) complemented the presentation with a brief statement on their ongoing work in relation to the Plastic Strategy. Work is on-going on circular design for FG; a call was launched to develop standards. Following up on the new provisions of the PRF-Directive fishing boats will now be included in the 100% indirect fee system and thus be able to deliver old fishing gear and litter through reduction initiatives such as fishing for litter to port. Herewith countries are enabled to report on any fished litter. Awareness raising through ocean literacy with a focus on kids and general public and exchange/mapping of joint initiatives on marine litter. Under EMFF, the blue economy calls in 2017 selected 5 projects focussed on ML including ML from aquaculture, FFL activities (currently 14 MS financed), adjustments of PRF, tagging FG, monitoring of ML with drones. Several events are being organised a.o. workshops lost derelict fishing gear and on lost containers (to be held on 2nd - 4th of July 2019).

Item 26-02 Workplan 2016-2019 – Progress update
Georg Hanke (JRC) gave a brief update of the key developments within the TGML. A progress report had been presented to the WG GES (March 2019):

- Due to delay in MSFD reporting (scheduled for 2018), analysis of MS reports has not yet been possible;
- Finalisation of monitoring guidance update across the different criteria has delay, still expected by end of this year, but also depending on MS experts' contributions
- Monitoring reporting is upcoming in 2020, giving the opportunity to TGML to still provide improvements in time for harmonisation, and to provide feedback for facilitation of the reporting process through WG DIKE and to EEA;
- Priorities of the group include besides monitoring harmonisation also the definition of baselines and thresholds;
- Global level initiatives (SDG 14, UNEA, IMO AP, Global Litter Observing) are becoming more relevant, TG ML has a role there, contributing to better alignment with European initiatives;
- Increased attention needed in future to further align the scope of monitoring with the effectiveness of measures;
- Organisational issues of TGML to be considered due to a shift from a solely technical group in the beginning (20 people) towards a mixed group of technical experts/policy representatives nowadays (110 people)

TGML was reminded on the need to prepare for the new mandate (2020-2023), which demands a good planning of short-term and mid-term goals. Furthermore, the resource allocation to ML initiatives is currently high, making it challenging for TGML to integrate all the outputs from the different initiatives in the upcoming TGML work, with limited own resources.

Item 26-03 MSFD D10 Implementation in Sweden
Johanna Eriksson (SwAM) highlighted that the Swedish West coast (Bohuskusten) is, due to currents, one of the most marine litter polluted areas in Europe (>1200 items/100 m), so international cooperation is very important. The Swedish actions on ML within their PoMs were pointed out, including collection

and disposal of derelict fishing gear & prevention of new losses, promotion of awareness raising, promoting cleaning up beaches in affected areas, improving waste management from land-based sources. Their involvement in different ML projects and initiatives was further highlighted including MARELITT Baltic, Ghostguard (online reporting tool for DFG to be launched in 2019), etc. They also supported e.g. FF Norden (Fishermen's association) addressing the disposal and recycling of end of life fishing gear and ghost nets and are looking for synergies such as recovery of DFG when recovering oil from shipwrecks. All these measures will be further analysed on what has been achieved and were gaps remain, to propose more specific and concrete measures and their funding needs for the next round of PoM under MSFD. SwAM has an important contribution in supporting financially these measures. Additional measures not included in the PoMs included a) subsidy to increase the development of innovative systems and processes for disposal and recycling of recreational boats; b) microplastics work by EPA.

Item 26-04 International collaboration on marine litter

Michail Papadoyannakis (DG ENV) gave some examples of international actions related to EU Plastics Strategy: partnership instrument project in Asia and South America, capacity building programmes for ACP/Regional Seas, adoption ocean charter and G7 innovation challenge, EU support projects for implementing regional plans, etc. Almost € 800M was invested in EU development aid projects (2014-2018) related to ML prevention. He emphasized the important contribution of the work done by TGML, used as basis for the development of EU Directives (e.g. SUP and FG), and further inspiring international policy (e.g. IMO action plan adopted last year).

Francois Galgani (IFREMER) presented the complexity of UN related initiatives and the involvement of TGML experts within this context (marked in red on graph, incl. RSCs, UNEA, WOA2, SDG 14.1, WG43, WG40):

- UNEP/UNEA is an important group, especially SDG 14.1 dealing with monitoring litter, and started Ocean Decade.
- GESAMP and its two working groups: WG40 (related to monitoring, with a new focus on microplastics & nanoplastics) and WG43 (a new group dedicated to sea-based litter from shipping, fishing, etc.)
- UN ENV and the working groups on ML under the RSCs
- World Ocean Assessment (WOA2), a UN related initiative to provide a global view on the state of the oceans will be launched next year, with a dedicated chapter on marine litter and a contribution from TGML.

Further information was given on other global initiatives including G7 (monitoring and new indicators in October 2019), G20 (in previous years more focus on plastics in a circular economy; in 2019 2 meetings planned in Japan with a focus on ML monitoring), OceanObs 2019 (towards a global monitoring including break-out session on ML and a UN workshop in order to define the ToRs for global monitoring), Activities in the Arctic (PAME) are aiming at harmonised monitoring and the development of an Action Plan. EC/RTD/Mission Healthy Oceans 2019 of which a significant part might be dedicated to marine litter related issues (prevention treatment and removal of pollution including plastics, circular economy, new materials, etc.), with substantial financial support for future measures.

Feedback from TGML and next steps

TG ML acknowledged the role it plays also at global scale, providing developed guidance and methodologies for use outside EU, beyond the neighbouring Regional Sea Conventions. Information exchange and active contributions by TGML at international level beyond Europe is important and should be maintained.

- List needed on the representation of TGML experts (and their role) in international fora (2019)
- New IMO group on ship-based sources has been established, TG ML contact has been set-up, study planned on quantification of marine plastic litter from ships and identification of knowledge gaps

Item 26-O5/08 Regional assessments and implementation/development of regional action plans

Item 26-05 OSPAR/ NE Atlantic

Mareike Erfeling, co-convenor ICG-ML, represented OSPAR and shared information on the progress for the ML indicators used as basis for the Intermediate Assessment on the state of the marine environment (2017). Besides the three existing ML common indicators for D10C1 (beach litter, plastic particles in fulmar stomachs and seabed litter, also plastic particles in turtles' stomachs has been adopted as common indicator (D10C3). Microplastics is still defined as candidate indicator (D10C2). Further indicators under development are ingestion in other biota and entanglement (D10C4). OSPAR is currently working towards the Qualities Status report (expected by 2023) including new assessments being done in 2019. Further, she presented some of the strategic developments including the implementation of the Regional Action Plan (RAP) demanding increased alignment with EU (e.g. EU Plastic Strategy) and international level, source identification work (likelihood tested by Germany on OSPAR beach litter data), potential adoption of sustainability education programmes for fishermen (incl. marine litter, target for FFL initiatives). Further work on harm is proceeding (ingestion, entanglement and other harm to biota), linked to the revised ComDec 2017, protection of species and habitats through support of ICG-ML to Actions part of Roadmap on implementation of collective actions, drafting new strategic and operational objectives for ML for North East Atlantic Environment Strategy 2030. She did not go into the implementation of the OSPAR RAP ML since the TGML chairs requested the RSCs before the meeting to focus on monitoring and assessment.

Item 26-06 HELCOM/Baltic Sea

Marta Ruiz (HELCOM secretariat) started with the announcement that the HELCOM monitoring sub-programme on beach litter has in principle been approved by HOD 56-2019 (taking into account editorial amendments) and considered alignment with the TGML process. She presented the agreed actions of the HELCOM Marine Litter Regional Action Plan (RAP) and highlighted the leading role of the countries in the implementation of the regional actions. Further details were given on the questionnaire approach used to report on overall status and proposals for further actions: waste management, MARPOL Annex V infringements, management of sanitary waste, deposit refund systems, landfills, disposal of end-of-life pleasure boats and national activities on ADLFG. On-going national activities are mainly targeting microplastics including source identification, prevention of micro-particles discharge from wastewater treatment plants, mapping of microplastic pathways through FanpLESStic-sea project (2019-2021). Other activities include HELCOM-INTERREG workshop on design principles (Berlin, June 2018), exchange platform for spreading experiences on good cleaning practices in beaches ('clean beach 2018), attendance UN events and contributions to UN reports, etc. She concluded with actions related towards the target year 2021 including an update of the RAP on ML, new ecological objectives for marine litter, a fourth workshop on implementation RAP ML (October 2019, Brussels) with a special focus on specific topics (ALDFG, storm water management, releases of expanded EPS and XPS).

Item 26/07 Barcelona Convention/Mediterranean Sea

Jelena Knezevic (UNEP/MAP) gave an update of the Integrated Monitoring and Assessment Programme (IMAP) for the Mediterranean set up in line with the relevant IG decisions. Detailed information may be found on https://www.medqsr.org. Capacity building workshops have been organised to support the national implementation of IMAP. Regarding ecological objective 10 (marine litter) 2 common indicators (CI) are agreed: CI 22 (litter washed ashore and/or deposited on coastlines), CI 23 (water column incl. micro-litter and on the seafloor). CI (24) (ingested/entanglement especially mammals, marine birds and turtles) is still proposed as candidate indicator (although protocol approved) and the development has been supported by a number of concrete activities in the framework of the EU-funded ML MED project including defining the most representative species for CI 24, assessment of available data to propose GES targets, etc. Protocols for monitoring interactions between ML and marine turtles have been prepared with the support of EU-funded INDICIT project and were approved (UNEP/MED WG/473/11). Further work has been done on data standards (DS) and data dictionaries (DD) for IMAP EO 10 (marine litter) for beach, seabed and floating litter (newly introduced) including meta data templates for beach and seabed ML, specifications of categories, etc. Cross-cutting issues and

common challenges relate to a better understanding of the interrelationships between the common indicators of EO10 and the main activities in terms of pressures in the Mediterranean. She further informed on the upgrade of the RAP on ML based on ongoing evaluations of the existing plans and defining the needs for additional measures. These could include e.g. a proposal to 'phase out' SUP instead of 'bans', consideration to implement stricter measures to combat ML in SPAMIs instead of MPAs, promotion of replacement of plastics, measures to address plastic toxic additives, exploring monitoring and assessing riverine input, etc.

Item 26-08 Bucharest Convention/ Black Sea

Irina Makarenko (Black Sea Commission Permanent Secretariat) provided slides with brief update on marine litter related activities in the Black Sea (presented by Georg Hanke, JRC, as she could not attend). The Regional Action Plan on Marine litter was adopted in October 2018, including a list of concrete activities on ML that will be regularly revised. The draft guidelines on marine litter were not adopted yet by the Black Sea Commission, and will be further considered by advisory groups, taking into account experience from other RSCs and EMBLAS II/EMBLAS-Plus project (http://emblasproject.org/). An EMBLAS-Plus/ JRC workshop on ML is planned for end of July 2019, Constanta, Romania. Further collaboration is ongoing between UNEP/MAP and the BSC PS, with the support of the EU Marine Litter project, which was in charge when preparing the RAP ML. A dedicated event to discuss implementation of RAP on ML and draft guidelines on ML is planned in autumn 2019. Future collaboration might go to elaboration of the monitoring programmes, programmes of measures and indicator species. More info may be found at www.blacksea-commission.org.

Feedback from TGML and next steps

TGML chairs and the EC were impressed by the progress made by the RSCs over the last years and emphasize the importance of continued collaboration between EU and RSCs. Following points of attention were raised during the meeting:

- Transparency needed how different data streams (beach, fulmars, seabed, etc.) are assessed by different data analysts (internal, external).
- Transparency needed on how RSC databases on marine litter (e.g. ODIM database) are linked to EMODNET and the work done by TGML.
- Further clarification was asked by the EC on the concept of 'ecological objectives', and emphasis laid on the importance to integrate the work of the TGML and WG GES in ecological objectives, as well as in monitoring programmes developed by the RSC. HELCOM stated that the rationale for the ecological objectives is still under development and guaranteed the compatibility of the HELCOM monitoring sub-programmes with the guidelines of TGML. MEDPOL confirmed that the refinement of ML categories has been aligned with the joint litter category list.
- The EC further asked to what extent the revision of RAPs will consider the effectiveness of measures e.g. through specific objectives. HELCOM explained that currently the evaluation occurs through evaluation of actions (a lot not initiated, some ongoing, none accomplished), but that a project has been launched to assess to what extent measures contribute to solving the ML problem. MEDPOL stated that the effectiveness is currently limited to available data such as 'adopt a beach initiative'. Revisions of the RAP in the Mediterranean will in a first phase focus on the identification of objectives, followed by planning of measures in a later phase.
- It was mentioned that the OCEANWISE project is relevant for any work/actions on EPS.

Further reflections were made by the RSCs on the added value of the work of TGML and the expectations for the future. In general, the work done by TGML is considered very useful, both for networking, acting as a common platform also for information exchange among RSCs, information on latest status of work done on ML, and more technical support especially regarding harmonisation for floating litter, micro-litter, seafloor and other new domains like entanglement/ingestion (monitoring, baselines, thresholds). It will be important to identify focus domains for TGML and RSCs work, and to find potential synergies for further collaboration (e.g.in relation to measures, revisions/extensions of monitoring, setting quantifiable targets).

Item 26-09 Beach baseline data and scenarios

Georg Hanke (JRC) outlined the process of the beach baselines setting, ending with the scenario analysis (April-June 2019), on protocol-based data from 2015-2016 (excl. beach clean-up data, EEA data). During the TGML annual meeting agreement is sought on the data analysis process (data tidying up, 100 m normalisation, litter type categories considered, spatial/temporal coverage, extreme values, spatial weighting), calculation methodologies (mean, median, trimean, etc.) and scenario options. The outcomes of the beach baseline work were presented, i.e. for the first-time numbers of beach litter occurrence on different aggregation scales and with different calculations methods have been shown. The final baselines will provide strong input to other activities in particular beach litter threshold setting and trend evaluation. The baseline work has close links with the top litter items list, the joint litter category list and the updating of beach litter monitoring guidance.

Feedback from TGML and next steps

TGML confirmed the value of beach baseline work, further supporting also other activities needed towards assessing the effectiveness of measures. Based on this work, TGML will give recommendations on beach baseline setting, to be presented at WG GES (September 2019), for confirmation of the final baseline setting approach.

Based on the discussion during the annual meeting, further feedback is requested by TGML on:
- Use of litter categories (abbreviations used: SUP (single use plastics); FISH (fishery related), TA (total abundance): 562 categories across all lists (many identical); different aggregations in different lists (e.g. bottle caps aggregated with cup lids or with bottles); resulting in 133 B-codes as combination of existing lists. B-code list will be uploaded on Wiki to be checked by TGML. To maximize policy relevance of baseline setting, it is important to consider the categories FISH and SUP; it could also be relevant to consider the fraction 'ALL plastics'.
- Data analysis – normalisation of survey length: mainly 89-118 m beach length stretches; normalisation used to 100 m length based on available information and assumption that protocols were correctly used
- Data analysis - weighting: which parameter best fit for weighting of data; coastline length, population density, riverine litter input, etc.? Concept of convex hull coastlines was presented (envelop versus detailed coastline) to further consider in the baseline assessment ('weighted' in the presented results is in relation to coastline length). To which extent short coastline data will be less considered when aggregating with countries with longer coastlines, also if the short coastline is at the same time is a very polluted beach? It was also noted that weighting of data may complicate the understanding of the original data.
- Data analysis – extreme values: how relevant to consider extreme values and to which extent will they affect the choice for using 'mean' as calculation methodology?
- Calculation methodology: extreme values influence whole area data when using 'mean' compared to 'median' or 'trimean (intermediate)'. Which methodology is best fit for purpose?
- Data quality – robustness of data: agreement that baselines setting has been done on a selected data sample (2015-2016), and for trend analysis the data collection process must be ongoing (collection of data 2017-2018 will start, agreed within TG ML).
- Data quality: How to take the maturity of monitoring (experience) into account? More experience may result in better (more representative) results. The same is true for bias in data related to different observers.
- Data quality - use of beach types: How to consider the heterogeneity of data due to different types of beaches: cleaned beaches vs not-cleaned beaches (reference to correctly applied protocol), tourist impacted areas versus undisturbed beaches, sandy vs rocky beaches, large tidal versus short tidal beaches, etc.? Data are currently not available for different types of beaches; there is future potential for modelling correlation.
- Data quality – small litter items: items up to 2.5 cm are not considered in the analysis of beach macro litter. Need to implement meso-litter (5-25 mm) monitoring according to TG ML guidance.

- How to stress the surveys on small litter items (on 10 m stretch) in the beach monitoring guidelines?

Beach baseline data (2015/2016) and scenarios have been analysed, in close collaboration between JRC, EMODNET, NL Rijkswaterstaat and University of Wageningen. Following actions are agreed in order to present the work on beach baselines:

- **Supporting material used for beach baseline analysis to be distributed to TGML, including the draft report, data base, list of B-codes (Georg Hanke, 11th July)**
- **List for MS on key decisions to be taken regarding baseline setting (Georg Hanke, 11th July)**
- **Feedback by TGML on key decisions (18th July)**
- **Comments on draft baseline report by TGML (30th July)**
- **Revision of draft baseline report (Georg Hanke, 15th August)**
- **Discussion of any last open standing issues with TGML (wiki/phone conference, last week august, organised by Georg Hanke)**
- **Final draft baseline report (Georg Hanke, 3th September, tbc)**
- **Editing/formatting draft baseline report (Annemie Volckaert, 5th September)**
- **Submission to WG GES (TGML chairs, 6th September)**
- **Beach baseline to be presented at WG GES (TGML chairs, 19th September)**

Once beach baseline setting has been finalised, the TGML will continue its work on baselines for other compartments, potentially starting with micro-litter and seafloor litter depending on data availability and monitoring maturity, while including others as they evolve.

Item 26-10 Beach litter – guidance review

Based on the outcomes of the beach baseline work, some considerations were formulated by Georg Hanke to consider in the beach litter guidance review: harmonization of beach survey length, level of detail of joint litter category list, potential of (online) monitoring tools (as EEA Marine Litter Watch) for facilitated data acquisition, monitoring origin of litter, monitoring of meso litter, etc. Other elements regarding beach litter monitoring to further consider by TGML during the guidance review are the adoption of the joint litter category list and a common approach for beach selection (representativity of beaches).

Feedback from TGML and next steps

TGML highlights the status of the guidance document, not being legally binding but of high importance to allow compatibility of beach data. It is stressed once more that the EU MS take an exemplary role in using the guidance document, the templates, etc. to drive the acceptance process within the RSC, and that close collaboration with RSCs is important to ensure compatibility and avoid double work. TGML agreed therefore that the RSCs need to be involved in the revision of the guidance document.

The monitoring guidance review is foreseen by the end of 2019, with following agreed roadmap for beach litter:

- **Lead: David Fleet**
- **Contributions: Thomie Vlachogianni, Willem van Loon, Member State delegates, other experts, Regional coverage needed**
- **First draft versions by experts uploaded on wiki**
- **Comment round by TGML group by 15th September**
- **Second draft by experts by 15th October**
- **Final comments by TGML group by 30th October**
- **Final draft by experts by 20th November**
- **Editing/integration/formatting monitoring guidance review by 30th November**
- **Finalisation 1st December 2019**

Item 26-11 Beach litter monitoring – EEA Marine Litter Watch

Mustafa Aydin (EEA) presented EEA's vision and approach on marine litter. The Marine Litter Watch evolved from tools (mobile app, web portal, public database) used for awareness raising/citizen science towards an increased focus on monitoring. EEA aims to develop a beach litter indicator (if the need exists) in line with the work of TGML etc. An EEA litter scoping assessment has been planned for this year on the data collected to assess trends in the data, to compare monitoring and clean-up data, as indications for what is further needed, what can be improved. The initial results indicate a decreasing trend in marine litter items over the last 3 years, except for the Black Sea. Future efforts will go to improve the quality of the metadata, the harmonization with EMODNET database, etc.

Feedback from TGML and next steps

TGML demands some clarity on how this parallel process adds value to the work of TGML; and how data derived are considered in EMODNET. The EC stresses that MS have the obligation to officially report on marine litter under MSFD taking into account the protocols developed by the TGML and their work done on baseline setting. MS decide which ML data are fit for this purpose. The added value of EEA could lay in awareness raising and clean-up activities. It was highlighted that through EEA Marine Litter Watch an additional data stream is created (according to guidelines in line with the protocols developed by TGML) to increase the number of beaches surveyed, and that citizens' science may not be underestimated in its value. It was also stated that the Marine Litter Watch as an (online) tool for monitoring can be supported, but only if data quality (according to TGML protocols) can be guaranteed. The question was further raised on the added value of an EEA beach litter indicator. EEA replied that the discussion is still on-going if and how to proceed with a beach litter indicator. EMODNET concluded that a beach catalogue, mapping the reference beaches used by EEA and TGML, and tagging the data on the way it was collected (citizens vs research-oriented data collection) could be valuable.

Further alignment will be needed to avoid duplication of work and to efficiently use resources, and include following actions:

- Conceptual issues on EMODNET database to be solved between EMODNET, EC, JRC – not the focus of TGML
- Agreement and confirmation by WG GES on approaches for MSFD litter monitoring needed
- EMODNET and EEA need to align the databases as at EU level only one database on marine litter can exist (subgroup needed under lead EMODNET). Further issues to consider: which data RSCs will use then? How is WG DIKE setting its process?
- Involvement of EEA in beach guidance review process to bring in the added value of Marine Litter watch towards beach litter monitoring - focus on practicalities.

Item 26-12 Joint Litter category list – finalisation

David Fleet (LKN) reminded TGML of the aim and limitations of the Joint Litter hierarchical system. It is a hierarchical system with different levels i.e. material, general types, specific types, size classes, etc. which should allow for comparison of data using the different levels. He pointed to some clarification needs in relation to the Single-use Plastics Directive e.g. lightweight plastic carrier bags, beverage containers, balloon sticks, fishing gear, foam, EPS, etc. To finalize the Joint Litter Category list some decisions need to be made on specific litter type categories (e.g. rubber, cloth, wood, food waste, chemicals, paraffin, etc.), a numbering system need to be added (without changing the old codes), a mechanism of adding/deleting items to be developed (e.g. agricultural items), an online catalogue of pictures to be produced, etc. David thanked the contributors to the list, especially the efforts done by Thomie Vlachogianni.

Feedback from TGML and next steps

Important to note is that the Joint Litter Category List is covering beach, floating and seafloor macro litter, providing thus a possibility for assessment across different criteria and matrices. Regarding the SUP Directive, TGML asked the EC how the items covered by the Directive were selected, as for example 'balloon sticks' are not covered in MS' monitoring programmes. The EC explained that this was done on available data from beach monitoring, but that also socio-economic data were considered. As currently only EPS in terms of foamed plastics is considered under the SUPs Directive, the EC

informed TGML that a study will be launched to define EPS and XPS and to identify items belonging under those two classes to enable the link between policy and monitoring. Regarding paraffin (> 2.5 cm) TGML agreed to include the item in the joint litter category list, but to exclude it for beach baseline analysis. A better definition is however needed for items belonging to the category 'paraffin and similar', as it is difficult to distinguish between paraffin, solid oil residues, tar, etc., if relevant aligned with IMO. Purpose is to ensure that chemical residues are being considered while found on the beaches, without biasing the monitoring data. It is proposed to provide along with the Joint Litter Category List an extended image catalogue which will include different images for each category, facilitating thus the attribution of litter to the categories. JRC will investigate the possibility to provide such an online catalogue of pictures. ICES has done some work on seafloor litter pictures that could be relevant to consider.

The Joint Litter Category List will be finalized and presented at WG GES (September 2019), following the agreed roadmap:

- **Lead: David Fleet**
- **Contributions: Thomie Vlachogianni**
- **Categories for paraffin to be defined and delivered to David Fleet (Georg Hanke, 15th July)**
- **Comment round by TGML group by 15th July**
- **Final draft joint category list by 20th July**
- **Comment round by TGML group by 15th August**
- **Final joint category master list by 30th August**
- **Submission to WG GES (TGML chairs, 6th September)**
- **Final joint category master list to be presented at WG GES (19th September)**

DAY 2 – 27th of June

Item 27-01 Floating macro litter – guidance review

Georg Hanke (JRC) repeated the rational and challenges of monitoring floating macro litter (FMML) monitoring, and the need for agreed protocols. The status of data available was pointed out, mainly in Adriatic (DeFishGear) and Mediterranean Sea (MEDSEALITTER), and more recently in the Black Sea (EMBLAS II). Most projects with knowledge on FFML were represented at a workshop held in Roma (February 2019) organised by JRC and MEDSEALITTER as a follow up of the 2016 Barcelona JRC FMML workshop. The JRC Floating Litter App (river + sea) will be available soon (date tbc). Different methodologies and approaches were presented including use of drones (Cleanatlantic, Medsealitter), aerial surveys (France, Accobams) camera systems (JRC Littercam, German HIDEF project), automatic detection (JRC FFML catalogue). However, it is not possible at this stage to provide final recommendations on guidance for the new methodologies for floating litter monitoring, as the maturity and operation ability of the new methodologies (parameters, spatial scope/coverage, reporting…) need further evaluation. The monitoring guidance on floating litter will be reviewed, using MEDSEALITTER as one of the main sources; floating litter is part of the joint litter category list (although some items will not be relevant for FMML).

Feedback from TGML and next steps

TGML highlighted that floating litter is mainly monitored as an opportunistic activity linked to long-term planned monitoring, for example during large marine mammal observations (e.g. "*ACCOBAMS Survey* Initiative" (ASI) in the Mediterranean and Black Sea), optical observations of oil slicks, etc., often not 100% compatible (resolution, scale) for marine litter monitoring. It was noted by the TGML chairs that AIS data, drifting patterns, radar maps could be helpful in defining and interpreting ML accumulation patterns.

The monitoring guidance review is foreseen by the end of 2019, with following agreed roadmap for floating litter:

- **Lead: Georg Hanke**
- **Contributions: Christina Zeri (Greece), Antonella Arcangeli (I.S.P.R.A) - to be appointed by 12th of July, possible contribution by German R&D project (Bioconsult SH)**
- **First draft versions by experts uploaded on wiki**
- **Comment round by TGML group by 15th September**
- **Second draft by experts by 15th October**
- **Final comments by TGML group by 30th October**
- **Final draft by experts by 20th November**
- **Editing/integration/formatting monitoring guidance review by 30th November**
- **Finalisation 1st December 2019**

Item 27-02 Seafloor macro litter – guidance review

Francois Galgani (Ifremer) informed TGML on the approach for the update on the seafloor litter guidance. After the JRC AWI workshop held 2018 in Bremerhaven (information provided by Georg Hanke) on seafloor litter monitoring, with international representation a scientific publication will push for harmonized reporting on seafloor macro litter, in particular regarding video/imaging surveys. Major changes/points to include in the revision of the guidance on seafloor litter include the further development of the protocols. This includes the use of video surveys aiming at a better comparability of data (to be used in rocky areas where trawling is not possible), better organization of seafloor data (e.g. MEDITS data), improved data management system (EMODNET) and the application of the updated list of categories (new list MEDITS + IBTS, use of new codes, less categories, harmonized (OSPAR, MEDPOL, etc.). Reference was further made to the publication: "EMODNET marine litter data management at pan-European scale" (Molina Jack et al., 2019).

Feedback from TGML and next steps

ICES has recently reviewed their litter category list; harmonization should be maximized to avoid working with two lists. It was therefore suggested that ICES would contribute to the guidance review (joint litter category list). The need of addressing the lack of data where fish trawls in certain areas in the Baltic Seas are not taking place was raised and suggested to be specifically referred to in the revised guidance. ICES stated that initial assessments have been done for the Baltic Sea and will share the results with interested parties. TGML raised another concern how to deal with compatibility of data linked to the opportunistic approach used for seafloor litter, e.g. between Finland and Russia, or EU and non-EU countries in the Mediterranean. Another issue of compatibility relates to the use of different trawling gears by ICES and MEDITS. The issue of data compatibility could be part of the guidance review.

The monitoring guidance review is foreseen by the end of 2019, with following agreed roadmap for seafloor macro litter:

- **Lead: Francois Galgani**
- **Contributions: Thomas Maes (CEFAS), Sweden, Denmark, Germany, JRC and I.S.P.R.A - to be appointed by 12th of July**
- **First draft versions by experts uploaded on wiki**
- **Comment round by TGML group by 15th September**
- **Second draft by experts by 15th October**
- **Final comments by TGML group by 30th October**
- **Final draft by experts by 20th November**
- **Editing/integration/formatting monitoring guidance review by 30th November**
- **Finalisation 1st December 2019**

Item 27-03 Micro-litter – TG Marine litter position paper/guidance review

Georg Hanke (JRC) emphasized the increased attention, initiatives for and developments on micro-litter (e.g. SAM report, SAPEA, micro2018, CEN SABE position paper, JRC workshop with active contributions by food/agro sector) but stated that there is still a general lack of coordination and of standardised protocols. The MSFD is the only framework with legal obligations to monitor micro-litter. The TGML micro-litter position paper will highlight the need for common approaches for basics of micro-litter monitoring for the MSFD. The development of the position paper had been on hold after the Micro2018 conference, due to the SAM report development. Clear policy objectives of the MSFD should result in methodologies to be used, followed by future standardization. It was stated further that micro-litter data is still limited in EMODNET and that further discussion is needed on how to proceed with the data gathering process (lower size range, compartments to cover, etc.).

As there are numerous activities on micro-litter monitoring protocol development ongoing, a round-table discussion was opened and multiple initiatives have been identified, at national, RSCs level and from research projects. TG ML though still identified the need for a dedicated workshop which should clarify, based on the TG ML Micro-litter position paper, the open issues and should provide the protocols for an update of TG ML monitoring guidance on micro-litter.

Feedback from TGML and next steps
TGML gave feedback on new activities/projects on micro-litter monitoring and measurements to consider. Further action is needed to complete the overview. It was noted that a new JPI Oceans call on Micro-litter had been launched and the selected projects will probably be known by end of summer 2019.

A stepwise approach has been proposed, starting with the finalisation of the position paper, to be used as input for a workshop on protocols for micro-litter, to discuss all issues relevant to review the guidance document. Maximum alignment will be done with the work in the RSCs on micro-litter (e.g. OSPAR meeting on micro-litter in sediments (Amsterdam, September 2019) to build a framework (tiered approach) to monitor micro-litter using different methods/budget requirements) and back-to-back options are proposed. A detailed action plan is proposed below:

- **Lead: Georg Hanke**

- **Contributions (to be appointed by 12ᵗʰ of July, estimated effort): Elke Fischer (DE), Jakob Strand (DK)**
- **Completion overview list of micro-litter projects by TG ML + nomination MS experts with interest in workshop protocols for micro-litter by 30ᵗʰ August 2018**
- **Draft position paper as input for workshop on protocols for micro-litter (Georg Hanke, 20ᵗʰ September)**
- **Review by TG ML group on draft position paper by 20ᵗʰ October**
- **Workshop on protocols for micro-litter, (JRC, Denmark, Germany, November 2019)**
- **Finalisation of MSFD TGML Micro-litter position paper (Georg Hanke + TGML, 15ᵗʰ December)**

Item 27-04 Entanglement & Ingestion – guidance review

Stefanie Werner (UBA) noted that due to insufficient presence of experts on the impacts of marine litter in TGML links with external experts and projects have been established. A technical meeting on impact monitoring and thresholds for MSFD was organised in Berlin (21ˢᵗ- 22ⁿᵈ May 2019), attended by 20 experts, representing 15 institutes and also two major projects INDICIT and Plastic Busters.

She presented the new requirements of the ComDec 2017 related to impact criteria (D10C3 and D10C4) and the basis for review and discussed per criteria which actions are needed. An overview was given of the revision of existing protocols (ingestion by seabirds, turtles and fish; entanglement of seabirds) and the development of new protocols on ingestion (mussels, marine mammals) and entanglement (seals rescue centres/haul out sites, sea turtles, deep sea benthic organisms). The importance of the projects INDICIT and Plastic Busters was highlighted to provide direct support to these revision process. Further details were given on the planning of the revision of the monitoring guidance, expected to be finalised by the end of 2019.

Marco Matiddi presented in more detail the protocol related to the ingestion of plastic particles in sea turtles (indicator species *Caretta Caretta,* limited to dead turtles), starting from the TGML monitoring guidance document and based on the outcomes of the INDICIT project (https://indicit-europe.eu/), further harmonized with the work done by RAC/SPA and MEDSEALITTER (Interreg project). A video protocol for turtles is online available (Matiddi *et al*., 2019[1]; https://www.jove.com/video/59466).

He further stated that the work has started on the indicator 'micro-debris ingested by fish, highlighting some parameters that need to be further discussed: limits for litter items to be considered, litter categories, methods to be used and their limitations, target species, sample size, sampling method. The protocol will be further developed and tested in the INDICIT II project, involving key experts, and further shared and reviewed by the TGML before approval.

Feedback from TGML and next steps

TGML further discussed sharks as potential target species being top predator feeding on smaller fish. Important will be the right matrix to consider for analysis (faeces, stomach, spiral valve).

The monitoring guidance review related to the impact criteria is foreseen by the end of 2019, with following roles & responsibilities, that were agreed during the technical meeting in Berlin and roadmap involving the wider TGML:

- **Lead: Stefanie Werner**
- **Task Leads: Marco Matiddi (Sea Turtle Ingestion), Marco Matiddi and Cecilia Silvestri (Fish Ingestion) and Jan van Franeker (Sea Birds Ingestion)**
- **First draft versions by experts uploaded on wiki**

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[1] Matiddi, M., deLucia, G. A., Silvestri, C., Darmon, G., Tomás, J., Pham, C. K., Camedda, A., Vandeperre, F., Claro, F., Kaska, Y., Kaberi, H., Revuelta, O., Piermarini, R., Daffina, R., Pisapia, M., Genta, D., Sözbilen, D., Bradai, M. N., Rodríguez, Y., Gambaiani, D., Tsangaris, C., Chaieb, O., Moussier, J., Loza, A. L., Miaud, C. Data Collection on Marine Litter Ingestion in Sea Turtles and Thresholds for Good Environmental Status. J. Vis. Exp. (147), e59466, doi:10.3791/59466 (2019).

- **Comment round and nomination of additional experts to be involved by TGML group by 15th September**
- **Second draft by experts by 15th October**
- **Final comments by TGML group by 30th October**
- **Final draft by experts by 20th November**
- **Editing/integration/formatting monitoring guidance review by 30th November**
- **Finalisation 1st December 2019**

Item 27-05 Riverine litter

Antoine Bruge (Surfrider) briefed the participants on the results of a workshop held in Paris (4-5th of June 2019) to exchange knowledge on projects related to riverine litter (both macro and micro-litter) and to improve networking. Eleven countries from the OSPAR region were represented, with a high dominance of scientists. Different projects, sampling devices and monitoring tools (e.g. digital app) used, etc. were briefly described by also stating that this was a random selection not representing a coherent overview on what is available and applied. As an output of the workshop an overview document was produced on the advantages and disadvantages of the methods presented. The same complexity as for marine litter is observed for riverine litter monitoring. Further elements to be considered: expectations/aims from riverine monitoring, comparisons of methods to demonstrate their performances and agreement needed on selection criteria for best methodologies to use. Therefore, the suggestion was made to further precise the policy framework to work in, the set-up of a working group at EU level and an information exchange platform. Documents and presentations are available through the weblink provided in the presentation.

Feedback from TGML and next steps

Although acknowledging the importance of riverine litter monitoring, due to lack of mandate and resources, coordination of riverine litter activities through TGML is currently not taking place. TGML has kept, as agreed among MSFD + WFD, the WFD Chemicals Group informed in order to steer for better coordination. Some efforts to identify macro litter fluxes to the sea have been made through the JRC RIMMEL project (publication in preparation by JRC and University of Cadiz) and are ongoing in other projects such as PLAWES and MicroCatch_Balt (DE). The TGML chairs stated that the revision of the WFD directive might be one option to take these actions further. Although there is a possibility to consider litter under WFD 1.4 as "other anthropogenic impact", the WFD so far does not include an explicit provision for riverine monitoring of litter. It was further stated that MSs do not have any legal obligations regarding riverine litter; all clean-ups occur on a voluntary basis. MS do though have obligations under the MSFD, which may include measures related to rivers, in case these are identified within the national MSFD program of measures.

Item 27-06 Research projects on marine litter – An update

A brief note was given by Georg Hanke (JRC) on the revised research project list (currently 93 relevant projects have been identified), prepared together with Thomie Vlachogianni (MIO-ECSDE), updated on the WIKI-platform. TGML participants are invited to review the list and add new projects (including national projects) before publication of the list. The group was further informed about a new call under Horizon 2020 including actions on marine litter.

Thomas Maes (CEFAS) presented an overview of marine litter research developments in Europe, mapped them against the timeline, research needs in marine litter and identified remaining gaps to reach the obligations of MSFD. The overview has recently been published as research publication. It was noted that some relevant projects on marine litter are missing.

Feedback from TGML and next steps

The EC stressed the added value of the revised research project list to support their work on marine litter, more specifically in identifying the projects covering the main needs of TGML group. To make it publicly available some adjustments could be needed e.g. to delete contact information, budget information, etc. The challenge is to keep this list updated and to provide resources for its analysis. It has been decided to continue the updating process for now.

A revised project list was prepared and uploaded on wiki, open for final revision.

- **Revision by TG ML (including adding of new projects) by the end of September**
- **Posting of revised list on wiki**
- **Publication of revised research project list**

Item 27-07 MSFD D10 Monitoring programs reporting

Mustafa Aydin (EEA) informed TGML on the update of Article 11, reporting of monitoring programs, by 15th of July 2020, mainly to simplify the reporting (less questions, less fields, etc.). Changes in the structure relate to metadata, monitoring strategies (geographical coverage, gaps, targets, and measures) and monitoring programmes (purpose, type, features, elements).

Feedback from TGML and next steps

The TGML chairs highlighted the importance to check the reporting requirements by TGML, in line with their work on monitoring protocols, before the finalisation of the WG DIKE reporting requirements. MS are invited to consult between GES, DIKE and TG ML delegates in order to develop the most efficient reporting for MSFD D10.

- **Inform WG GES on the need for cross-consultation TG ML, GES, DIKE with EEA**

Item 27-08 Thresholds for marine litter

Stefanie Werner (UBA) reminded TGML on the steps taken in the development process of thresholds for marine litter, including the preparation of the general discussion paper and several expert meetings. An approach for the development of threshold values for beach litter will be presented at the upcoming WG GES meeting in September which will be followed by work on TVs for the impact criteria.

Threshold for beach litter

The proposed methodology for beach litter threshold setting is based on the approach for aiming at low, but achievable litter concentrations on beaches. This would be achieved by analysing the TG ML beach litter baseline dataset and identification of the 10th percentile of the EU baseline, i.e. the total abundance beach litter concentration at which 10 % of the beaches are below. David Fleet & Willem van Loon presented the calculation results (percentile method) for beach litter threshold values at several regional scales (EU, MSFD sub-regions, country), based on the TGML baseline dataset 2015-2016, aiming at setting SMART threshold values for beach litter. They proposed to use real data of the least polluted coastlines in Europe, using the low percentile values (1st, 5th and 10th) of total abundance (TA) of anthropogenic macro-litter (medium assessment value, normalized 100 m monitoring data). The Excel values have been validated using R. The calculation results as contained in Tables 1, 2 and 3 in the background document sent to the meeting were presented and discussed. Then, the inclusion of uncertainty in the threshold value was discussed.

Feedback from TGML

Issues that were further discussed in TGML include a realistic ambition level, how to integrate uncertainty in threshold setting, which geographical level to consider, if median or mean assessment values need to be used as basis, if we need to focus only on plastics or consider all items, etc.

Revision of threshold values: Threshold values are set based on data 2015-2016; and should be maintained/fixed (no recalculations over the coming years as the threshold will even become lower, and the MS would be punished for their efforts); so not to be considered as a 'provisional' threshold. A potential change of thresholds may occur in future only in relation to new data on harm becoming available which gives clear arguments for changing the threshold values.

Realistic ambition level: clarification of concept threshold values needs to be well-explained; in relation to GES, baselines, etc.; threshold values may be very ambitious as they are not representing GES but a milestone towards the achievement of GES and therefore a status where no or minimal harm is caused. The addition of a timeframe to the threshold value was discussed (in principle 2020 but might differ; indication needed on 'realistic' timing). The possibility of applying exemptions (Art. 14 of the MSFD)

was raised for those countries that could not reach the proposed threshold value. Important here, is that cross-border effects will make it more challenging in reaching threshold values (e.g. Swedish case); mapping hot spot areas to concentrate first efforts on these 'problematic' beaches (priority) could be considered.

Geographical level: Thresholds represent the value that allows for an assessment of the quality level achieved for a D10 criterion. The situation is different for baseline setting and trend settings (in relation to baseline) as this should be linked to the level at which measures are taken to allow to measure their efficiency at the geographical scale they are taken. It is the task of TGML to propose an approach for threshold value setting. The proposal of TGML is scientifically, data-based, and the argumentation will be presented to WG GES.

Uncertainty in threshold setting: From a statistical perspective it is important to consider uncertainty levels, although we need to take care that it does not add to the complexity of the analysis, and that MSs with large number of surveys are not 'punished' due to narrow confidence interval (more difficult compliance). The proposal therefore does not correct the median assessment value (AV) for uncertainty. It could be an option to consider the variance (in terms of MAD) in the percentile value.

Litter items to consider: It was discussed if we need to concentrate only on plastics. TGML chairs point to the importance to consider all items, to be in line with the ComDec (all categories) and that, although found in limited amounts, some types of litter items can be very harmful. Also considering the disamenity aspect, i.e. rejection of litter by public would require the consideration of all litter types. It was agreed to consider all items. It is important to make the link with (policy) measures. It is uncertain whether cigarette butts have been included in the calculations for the HELCOM area.

Decision on threshold values for beach litter

It was agreed to propose the **10p percentile value at EU level without uncertainty (13 (tbc) items/100m).** This number is statistically more robust than the approach of having beach litter percentile values at country-region level, as initially proposed. There is still a need to clarify whether the data on cigarette butts from the HELCOM area have been included in the data calculations.

Next steps – consideration for the revising the threshold document

More calculations will be made, and the document will be improved based on the comments received during TGML. Key issues to consider in the revision of the threshold document include:

- **Rationale** should be made clear. Clarification of concept threshold values needs to be well-explained; in relation to GES, baselines, targets, etc.; threshold values may be very ambitious as they represent a status not or minimal causing harm. At least an indication is needed on (realistic) timing for reaching thresholds. Bring the positive story. It is the momentum for ambitious objectives for ML (high on the agenda), with huge efforts ongoing on top items supported by policies, all contributing to reach these (long-term, ambitious) thresholds through a set of targets (intermediate, realistic objectives).
- **Level of ambition**
  The proposed methodology is based on a high ambition as being shown by the EU Plastics Strategy, political support and evidence of public opinion. A threshold should match the aim to drastically reduce marine litter.
  - o Italy mentioned the difficulties in achieving compliance with low values. Sweden, supported by other MS emphasized the need for an ambitious aim.
  - o It was discussed that e.g. a threshold set at ca. 100 items/100 m beach would denote 1 item on each linear meter, which could not be perceived as clean/pointing towards GES.
  - o It was proposed to link the ambitious threshold value (finally between 10-20 items TA/100 m coastline) with targets that will accompany the gradual reduction of beach litter.
- **Calculation method** will be explained, highlighting that based on the current level of knowledge, threshold setting will be based on the aim to achieve clean beaches and to set thresholds in a way that the 10 % least polluted beaches in EU are used as reference.

- o Transparency on terminology used in the background document: e.g. assessment values are not mentioned, the term 'medium value' is used now in the document
- o Transparency on choice for number of items, rather than weight values (reference can be made to the ComDec were numbers are also mentioned).
- o Transparency on why certain items were excluded from the analysis; it is uncertain whether cigarette butts have been included in the calculations for the HELCOM area. Eva Blidberg (Sweden) is to be contacted for clarification on this topic.
- o Transparency on choice 10p percentile value at EU level without uncertainty (13 items/100m)
- o Transparency on the 2,5 cm limit and discussion on the time schedule to achieve the thresholds
- o Transparency on mechanism to revise thresholds if more data becomes available on harm
- o Transparency on how to evaluate situations already reaching the threshold values
- o To be checked: Macaronesia region included?

Roadmap finalization general discussion document and beach litter threshold proposal

A revised version of the discussion document on general approaches to derive threshold values for marine litter has been delivered to TG ML for a final commenting round. A first proposal for threshold values for beach litter has been approved at the TG ML annual meeting and will be further elaborated to be presented at WG GES (19th September)

- **Revised version of the discussion document on general approaches to derive threshold values for marine litter delivered to WG GES in time for annual meeting of TG ML by Stefanie Werner, following a last commenting round by TG ML by 16th of August**
- **Final draft of discussion document (Stefanie Werner by 23rd August)**
- **Editing/formatting general discussion document for ML TVs (Annemie Volckaert by 5th of September)**
- **Second draft of beach litter threshold document by Willem van Loon by 15th August, following the feedback from the TG ML meeting in Gothenburg:**
  - o **Introduction section highlighting the difference between the concepts 'thresholds' and 'targets' + rationale behind an ambitious threshold as ML is currently high on the agenda**
  - o **Description of the proposed threshold setting method**
  - o **Analysis resulting in a fixed threshold value (not provisional) set at European scale**
  - o **Linking threshold value with an approach for target setting to gradually move towards GES**
- **Comments by TG ML group by 30th August**
- **Final draft threshold document for beach litter (Willem van Loon, 3rd September)**
- **Editing/formatting threshold document for beach litter (Annemie Volckaert, 5th September)**
- **Submission of both documents to WG GES (TG ML chairs, 6th September)**
- **Threshold document for beach litter presented at WG GES (TG ML chairs, 19th September)**

Threshold values for ML impact criteria (introduction)

Stefanie Werner presented the outcomes of the Berlin workshop towards threshold values for D10 impact criteria. She gave an overview about implemented and proposed threshold values for ingestion including OSPAR EcoQO Northern Fulmar, lethal effects on green turtles, MAES index for benthic assemblages, TV for loggerhead turtles. Potential indicator species for EU waters were further discussed for ingestion and entanglement, as well as possible methods to derive threshold values. Based on the available data it was decided to start with threshold values for litter ingested by fulmars (revision). Further work will be done on ingestion in sea turtles (2019), nested litter in seabird breeding colonies in 2019/2020, and litter ingested by mussels and fish in 2020. It will be supported by projects output.

Expert groups (including representatives of RSCs and relevant projects) have been set up during the Berlin workshop dealing with the different impact criteria (monitoring protocols, TV). TGML is invited to nominate additional experts for the specific working groups, ideally with a specific background in the matter.

TV for ingestion in turtles

Marco Matiddi referred to the new Commission Decision (2017) and its criteria D10C3 on amount of litter ingested by marine animals. He further referred to the developed INDICIT protocol proposing two possible scenarios to work towards GES, both based on ML weight: scenario 1 (based on % (dead) turtles with g plastics ingested) and scenario 2 (based on % (dead) turtles having more g plastics ingested than food remains). For ingestion by loggerhead turtles, comparable data were found in Italy and Spain, ca. 27% of the turtles having 1.3 g of ingested plastics (dry weight). Thresholds should be determined in the pristine or near pristine area, therefore different homogeneous zones were analysed.

However, if a threshold value should be fixed and remain on longer term (comparable as discussed for beach litter TV) this value might not be ambitious enough and should reach 0%. This needs further discussion.

Feedback from TGML

The importance to align with the GES definition (e.g. amount of litter ingested) was stressed, as including new parameters might demand a formal change of GES definitions. Marco Matiddi confirmed this and stated that weight was used instead of number of items due to the issue of fragmentation of plastics. TGML raised the issue of statistical bias as only dead animals are used in the analysis (as living animals may have no plastics ingested). Marco Matiddi stated that plastics are not killing turtles (in general mainly sublethal effect) (on sample of around 1000 animals only 5 animals were found with GI tract blocked by plastic). Francois Galgani further pointed to the uncertainty in variability related to amount of food in scenario 2.

TV for ingestion in fulmars

Willem van Loon presented briefly the results and perspectives related to the TV for fulmar. So far the level of pollution in the least polluted/nearly pristine area (Canadian Arctic) is applied (no more than 10% of beached fulmar should have more than 0.1 g plastics in their stomachs (OSPAR). The proposed fulmar assessment method has been improved statistically, by incorporating the 95% confidence intervals of both the threshold value and the assessment value. The proposed assessment method is currently reviewed by The Netherlands.

Roadmap discussion document towards threshold values for impact criteria

A first discussion document towards threshold values for impact criteria (ingestion) has been uploaded before the TG ML annual meeting and will be further elaborated:

- **Comments by TG ML group by 15th September**
- **Next draft version by 15th November**
- **Presentation to first WG GES meeting in 2020 (depending on maturity of proposals for TVs)**

DAY 3 – 28th of June

Item 28-01 EMODNET- Marine Litter State of Work

Matteo Vinci (OGS, EMODNET chemistry module consortium), presented the progress on marine litter data collection and management (www.emodnet.eu). Data are gathered (consolidated data formats/protocols) and further processed (maps, plots, aggregated/validated datasets) at EU scale for beach litter, seafloor litter and micro-litter. Currently two central databases are developed: one for beach litter (modelled after OSPAR-MCS approach) and one for seafloor litter (modelled after the ICES-DATRAS approach). Other litter data are managed through SeaDataNet infrastructure and data formats.

The structure, data input & interaction and reference lists used for both databases were presented. An overview was given on the different data sources and the data collection status on beach, seabed and floating litter. Data are harvested from RSC databases, ICES, MS (collated by JRC), EMODNET partners, additional sources (DeFishgear, EMBLAS project, Volvo Ocean Race, etc.). Currently efforts are being made to validate the EEA Marine Litter Watch and tidying up to ingest in EMODNET beach litter database (currently 15 countries ingested). It should be discussed to which extent the cleaning/monitoring definition used by EEA Marine Litter is consistent with official monitoring definition from MS under TGML. A tailored web service for EMODNET Chemistry providing "difference of available data" by country and date would be helpful.

Feedback from TGML and next steps

TGML raised concern on the long-term existence of EMODNET, being a project or not. DG MARE confirms the importance of EMODNET as data structure, without going into financial and further logistic details. Matteo Vinci stated that data collection/validation is ongoing, even if EMODNET chemistry is waiting for a new phase of funding.

The added value of EMODNET as a data storage base and the openness of the system for external data sources was further explained. While this provides the opportunity to gather most existing data, not all of the data may be endorsed by MS for use in MSFD baseline and threshold development work. In principle there is no objection to include EEA Marine Litter Watch, if fit for purpose for the TGML work (based on TGML protocols). ICES proposed to do some adjustments related to the seabed analysis done by EMODNET, referring to a previous publication by ICES. EMODNET will take this comment into account.

It was proposed to kick-off the next round of beach litter data collection and MS delegates agreed to provide such data (2017 + 2018). It is planned to start data collection through EMODNET using a common format, thus reducing the effort. Matteo Vinvi reminded MS that the National Marina Data Centres might be very helpful to re-structure data prior submission.

Besides the ongoing data collection on beach, seafloor and floating litter, JRC pointed out that data gathering on micro-litter will start, and that a practical approach for data ingestion should be discussed. Feedback was provided by the RSCs on this issue:

- OSPAR: technical issues to be solved in OSPAR database before it can be distributed further; data available up to 2017/2018; coverage of all OSPAR MS
- HELCOM: a central database for HELCOM is non-existing; project-based; so individual MS will need to be approached.
- MEDPOL: existing infrastructure MEDPOL database under RAC; new infrastructure INFARAC structured on 25 common indicators that will be tested in June 2019; intention that the first 10 common indicators (old ones) will be ingested from September 2019; no historical data on ML, but contracting parties will be obliged to report on beach, seabed and floating litter

This denotes that litter data will need to be collected also from MS individually. It was further discussed how to avoid duplication of work on data reporting and guarantee data quality. Using compatible data formats (between TGML, RSCs) is crucial in this. As MS have a formal obligation to report (6 yearly) to EEA coordinated by WG DIKE) also format compatibility with EEA should be guaranteed. The data quality of EMODNET, organized as a deformalized data entry, was questioned. OSPAR data are validated before data entry in EMODNET, which is not the case for the other RSCs (not having a central database). Here, it is MSs responsibility of quality assurance. It is expected by TGML chairs that the data submitted by MS to official data reporting (MSFD) is also sent to TGML (who uses EMODNET as data infrastructure); the difference may lay in a different time scale to allow for further TGML analysis.

Based on the input of TGML, following next work steps with EMODNET were defined:

- **Beach litter data entry (continued)**
  - **Validation EEA ML data (Emodnet, XXX)**
  - **Beach litter 2017/2018 (starting in September)**

- **Seafloor litter data entry**
  - **Continued ingestion of trawling data (MEDITS)**
  - **Development of template for visual survey data**
- **Micro-litter data entry**
  - **Data formats compatibility**
  - **Data entry RSCs (OSPAR only)**
  - **Data entry individual MS**
- **Floating Litter data entry**
  - **Development of data template**

Item 28-02 Litter and chemicals D10-D8

Georg Hanke (JRC) presented the landscape of the different players involved in contaminants assessments (D8/D9). The discussion remains how to consider contaminants found in particular on beaches and seafloor posing a potential 'chemical' risk (e.g. tar, 'paraffin', ammunition) in the assessments. In terms of awareness raising, it is important that they are reported. Other issues to discuss on contaminants assessments linked to litter relate to polymer additives and to adsorption/desorption processes of chemical contaminants by (micro-)litter and herewith to the potential toxicity of (micro) litter items/particles. During the recent MSFD Expert Network of Contaminants meeting (14.+15.5.2019, Vigo, Spain), these issues have been discussed.

Feedback from TGML

TGML agreed to include contaminants found on the beaches such as tar, 'paraffin-like substances' in the joint category list, but to exclude them from baseline assessments on total abundance. Similar for ammunition, monitoring should include occurrence documentation.

- Ensure continued information exchange with MSFD Expert Network on Contaminants

Item 28-03 Modelling of marine litter pathways

Adolf Stips (JRC) presented the development of marine litter modelling under the BLUE2 project. Several processes influence the transport and accumulation processes of floating marine litter: aging, breaking down, sinking, beaching. Dispersion modelling could identify pathways, source and accumulation regions. Tracer simulation (micro; < 5 mm diameter) and particle simulations (macro; > 5 mm diameter) will be used. The modelling framework will cover all European Seas including hydrologic, hydrodynamic, food web, biogeochemical and atmospheric models. Initial results were presented for the Mediterranean Sea. Long term simulation of beaching shows a southern trend. Short simulations starting from homogenous distribution of particles show a strong seasonal dependence of accumulation: Ionian (summer) and towards Turkey (winter). Next steps are to start from non-homogenous distribution of particles giving a more realistic image of the ML problem, validation for beach litter, comparison with seafloor data, use of realistic riverine input data.

Feedback from TGML

TGML discussed the added value of modelling to get better insight in the patterns/accumulation regions of floating litter, to effectively implement measures. It was highlighted that already quite a lot of modelling experience/knowledge is available in MSs and RSCs on marine litter, as well as from other modelling groups (Balearic (SOCIB), SCOR Group on Flotsam, EU project CLAIM etc.) which should be taken into account to increase the efficiency of the outcomes of BLUE2 project.

Item 28-04 Measures and monitoring

Georg Hanke (JRC) opened the discussion by stating that linked to our work on monitoring, baselines and thresholds, interaction with and requirements for measures should be further tackled. As there are many players involved in measures implementation, it should be discussed if and how to take this work further within TGML group.

Feedback from TGML and next steps

TGML discussed following elements for further work on measures:

- Effectiveness of measures:
  - o The available monitoring data should be capitalized as a basis for priority setting of measures. The link between MSFD measures and Waste Framework Directive is a high priority. It will be important to identify common elements to be included in Waste Prevention/Management plans and to increase coordination so to avoid double work.
  - o EEA has finalised a project collecting all available data on WWTP, tourism, etc. giving more information on potential sources, pathways, etc. that might be helpful as a starting point. In a next phase EEA will establish a pilot set of indicators to correlate measures with policies.
  - o There are several ongoing efforts in EU across different policy frameworks which aim at linking monitoring, sources, pathways and measures. The MSFD is a key Directive which provides the legal framework for coordinating these efforts.
  - o It was further stated by TGML that fit-for-purpose data will be needed to assess the effectiveness of measures. The EC informed TGML that several new projects launched have a work package on identifying measures and their effectiveness to consider.
  - o It was also stated, that a lot of measures are foreseen due to new legal requirements but not implemented yet. Therefore, clear operational targets should be defined to allow future assessment of their efficiency.

- Facilitating coordination of implementing measures: RAP ML developed under RSCs are used by contracting parties, but there is a lack of coordination with EU level which may decrease the efficiency of implementation. TGML could play an important coordinating role as both EC, MS, RSCs are represented in TGML.

TG ML agreed to continue with work on measures, to be further defined in workplan of TG ML for next years (TG ML chairs, mid-August 2019)

Item 28-05 Implementation of measures

Georg Hanke (JRC) asked TGML on proposed activities on measures against litter to be included in next mandate. The EC (Michail Papadoyannakis DG ENV) agreed that potential work on measures needs to be followed up with the necessary resources.

Feedback from TGML and next steps

Suggestion to work on measures by TGML:

- Catalogue of measures: mapping measures against joint category list; what actions have been taken and which related instruments were most effective; what are alternative options for specific measures (example of ban on single use plastics, and if biodegradable bags are a valid alternative)
- Focus themes: focus needed on some priority categories/items to enable to discuss measures related to these themes in more detail; top litter item list could be used as starting point
- Effectiveness of measures
  - o Geographical scale: power assessment of measures e.g. effectiveness at larger scale? Effectiveness of measures taken at smaller scale might be hard to detect!
  - o Policy related: e.g. effectiveness of SUPs Directive? Top litter item list?

Based on the discussion, there is expertise available within TGML to start the work, and network relationships exist to reach out to external experts on ML. Feedback was given by TGML on their involvement in MSFD POM, either in developing PoMs (SI, SW, GE, DK, ES, HR, FR) or directly in charge of implementation of measures (GE). RSCs provided info on the working groups following up implementation of RAP ML by PRESSURE Working Group/ GEAR Working group (HELCOM), ICG-ML (OSPAR), ML experts within contracting parties (MEDPOL)).

Item 28-06 TGML workplan 2020-2023

Georg Hanke informed that the next WG GES workplan and mandate 2020-2023 will be discussed beginning of July (Berlin) by the Drafting group GES.

A table with draft elements of a TGML workplan proposal had been provided to TGML on 30.5.2019 and was presented and discussed.

Besides continuation of the work on guidance, baselines and thresholds, TGML agreed to start with work on measures. Currently the discussion about measures on marine litter is not in the mandate of the TG Marine Litter. Broadening the scope to link with measures will demand additional resources and a potential reconsideration of the composition of the group. TGML is invited to discuss this question with relevant colleagues, also the draft workplan and the potential need to identify new specific experts in relation to measures. Timely feedback on the issue (expected latest by end August 2019) will be forwarded to the MSFD GES drafting group and to the upcoming GES meeting (September 2019).

Item 28-07 TGML organisational issues

Based on feedback received and her own impression Stefanie Werner (UBA) concluded that the TGML meeting in Gothenburg was a success and further discussed potential improvements of the working process.

Improvements internal communication and WIKI platform
- WIKI structure should allow to make document management more transparent, and improve internal communication;
- Problems with notifications prior to TG ML meeting need to be solved,
- New folder to be created before next meeting where preparatory documents will be uploaded with clear actions requested, document deadline before annual meetings to be introduced
- Suggestion made for automatic notification (by email) for new documents uploaded, rather than for each comment, WIKI options will be investigated
- Calendar and agenda of informal meetings, workshops, etc. to allow timely organisation of national expert involvement
- Offline working on documents (through wiki) should be used increasingly

Improvements organisation TGML meetings:
- Attention for timely delivery of background/preparatory documents to allow internal feedback by other national experts beforehand and to be better prepared for meetings (e.g. 2 weeks in advance)
- Registration deadline to allow effective organization of the meeting (e.g. capacity of meeting rooms, hotels, etc.)
- Consideration of division in more technical meetings/outbreak sessions and informative meetings, potentially organized back to back

Item 28-08 Wrap up and next steps

A list of agreed urgent actions compiled on those elements discussed during the meeting (Gothenburg, 26-28th June 2019) that will be presented at the next meeting of WG GES (19th September 2019, Brussels) will be posted by beginning of July. The minutes (including all agreed actions) will be produced by beginning of August, reviewed by the EC and the TGML chairs, posted on wiki and open for revision by the TGML experts until end of August 2019.

Item 28-09 Closure of the meeting

The TGML chairs warmly thanked the hosts from SwAM, Sweden in particular Josephine Rubia Johansson, Johanna Eriksson and Tobias Porsbring for their kind hospitality. They then thanked all participants, for their presence and contributions and closed the meeting at 16.00h on 28th June.

Annex 1 – Attendance List

	Delegate		Country/Organisation
	Chair group and EU		
1	Galgani	Francois	France
2	Werner	Stefanie	Germany
3	Hanke	Georg	EC JRC
4	Papadoyannakis	Michail	DG ENV
5	Stulgis	Maris	DG MARE
6	Aydin	Mustafa	EEA
7	Trdan	Stefan	EEA
8	Nordhausen	Walter	EMSA
9	Stips	Adolf	EC JRC
	EU MS		
10	Tutman	Pero	Croatia
11	Antoniadis	Konstantinos	Cyprus
12	Soederberg	Lone	Denmark
13	Feld	Louise	Denmark
14	Strand	Jacob	Denmark
15	Suikkanen	Sanna	Finland
16	Setälä	Outi	Finland
17	Fleet	David	Germany
18	Fischer	Elke	Germany
19	Zeri	Cristina	Greece
20	Matiddi	Marco	Italy
21	Silvestri	Cecilia	Italy
22	Babbini	Lorenza	Italy
23	Lauciute	Laura	Lithuania
24	Van Loon	Willem	Netherlands
25	Lopes	Clara	Portugal
26	Palatinus	Andreja	Slovenia
27	Zorzo	Pilar	Spain
28	Porsbring	Tobias	Sweden
29	Eriksson	Johanna	Sweden
30	Rubia Johannsson	Josephine	Sweden
31	Blidberg	Eva	Sweden
32	Andersson	Åsa	Sweden
33	Russell	Josie	UK
34	Maes	Thomas	UK
35	Pery	Joe	UK
	RSCs		
36	Knezevic	Jelena	MAP, Barcelona Convention
37	Ruiz	Marta	HELCOM
38	Godwin	Jennifer	OSPAR
39	Erfeling	Mareike	OSPAR
	Organisations and NGOs		
40	Volckaert	Annemie	ARCADIS
41	Vinci	Matteo	EMODNET

42	Vlachogianni	Thomais	MIO-ECSDE
43	Mongodin	Frédérique	Seas at Risk
44	Bruge	Antoine	Surfrider
45	Collot	Anne Gaëlle	PlasticsEurope