**MARPOL ANNEX VI Experts Workshop**

**Minutes**

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| Online |  |
| Date | **2-5 February 2021** |
| Workshop Chair | **Ronny Schallier (EAP Chair)** |
| Co-Convenors | **Ward Van Roy (MUMM),**  **Stephanie Seddon-Brown (EMSA)**  **Andreas Weigelt (BSH)** |

Introduction

1. The Chair of the workshop, Ronny Schallier (Belgium), welcomed all participants including OTSOPA delegates, national experts, policy advisers, technology developers and representatives from NSN, REMPEC and HELCOM to cover legal, strategic, operational, technical and scientific aspects related to MARPOL Annex VI. The programme is included in Annex 3 and a list of participants in Annex 5.
2. The Chair highlighted that the Workshop aimed to exchange current technical and operational best practices of ship emission monitoring; to develop a common MARPOL Annex VI compliance monitoring strategy within the Bonn Agreement and initiate the drafting of operational procedures for the organisation of MARPOL Annex VI monitoring in the Bonn Agreement; and to facilitate the coordination of MARPOL Annex VI monitoring activities in the Bonn Agreement area.
3. The Chair of OTSOPA, Torben Iversen (Denmark), highlighted that the Bonn Agreement could be a first move to address MARPOL Annex VI from a regional perspective. He referred to the Ministerial Meeting in 2019 where Ministers agreed the decision on the extension of the scope of application of the Agreement with a view to cooperate on surveillance for the requirements of Annex VI of MARPOL. Although the ratification process was still ongoing, he pointed out that the workshop was a cornerstone of OTSOPA’s future work on MARPOL Annex VI.

Keynote speakers

1. Christophe Swolfs from FPS Mobility (Belgium) presented an overview of the international and EU ship emissions regulations. He mentioned that sniffers used for targeting could also be an additional evidence in court. For NOx emissions the sniffer output could be a standalone proof as so far no procedure is in place for inspection in port e.g. based on consumables like for SOx. He recommended to have a certification of sniffers according to international standards to make them admissible evidence.
2. The NSN Chair of the North Sea Network of Prosecutors and Investigators, Ewald Brandt (Germany), gave a presentation on enforcement of MARPOL Annex VI cases. He mentioned that MARPOL Annex VI cases were discussed at NSN since 2016. He highlighted that monitoring was a very effective preventive measure, as it gives an indication of a suspicious /potentially non-compliant vessel. . He recommended to consider the strengths of the different monitoring approaches and to have information exchange between OTSOPA and NSN on MARPOL Annex VI enforcement.
3. Ove Njoten from Kystverket (Norway) presented the Bonn Agreement documentation and reporting procedures based on best practice that was scientifically developed (such as the oil spill volume estimation method - BAOAC), and on sharing national information. He suggested to use the «standardized» way of operating, collecting and analyzing evidence and reporting as in the AOH (Aerial Operations Handbook) of the Bonn Agreement to organize surveillance of the requirements of Annex VI of MARPOL, which will also facilitate mutual acceptance, training purposes and preparation of statistics.

Emissions monitoring strategies

1. Ward Van Roy from MUMM (Royal Belgian Institute of Natural Sciences) gave a presentation on airborne monitoring strategies and described the monitoring operations for SOx emissions carried out since 2015 in Belgium by the remote sensing aircraft which was equipped with a sniffer, which resulted in a reduction of non-compliant vessels and an improvement of PSC efficiency. A total of 5,000 ships have been monitored in the 2015-2020 period with a 6.9% non-compliance rate. He also referred to the promising start-up of NOx compliance monitoring operations initiated one year ago, in view of the entry into force of the North Sea NECA on 1 January 2021.
2. Andreas Weigelt from the German Federal Maritime and Hydrographic Agency (BSH) gave a presentation on the operational use of fixed sniffer stations for SOx compliance monitoring near-/onshore (in port entrances, estuaries etc.). In Europe there are currently 13 fixed sniffer stations in operation in Denmark, Germany, Finland, the Netherlands, Sweden and the United Kingdom. The 3 fixed stations in Germany, in operation since 2014, 2017 and 2018 respectively, have made more than 43,000 measurements with a compliance rate above 99%. The German dataset was also analysed for compliance with the NOx limits (TIER I-III) and it was found that in the period 2014-2020 90% of the analysed plumes were compliant to TIER I but only 9% were compliant to TIER III limit.
3. Therese Christensen from the Danish Maritime Authority (DMA) and Clea Henrichsen from the Danish Ministry of Environment (MFVM) gave a presentation on helicopter and mini sniffer emissions operations. The monitoring operations using EMSA’s RPAS in the nearshore and in port were successful and included first night measurements. The helicopter operations carried out by 2 units together with the drone campaigns in Danish waters showed the downwards trend observed throughout the Northern European SECA of steadily improving sulphur compliance. A compliance rate of 98% was reported and 10 fines had been imposed through criminal proceedings.
4. Olaf Trieschmann and Sergio Alda from the European Maritime Safety Agency (EMSA) gave a presentation on the RPAS/Thetis-EU service. EMSA reflected that RPAS were an efficient, safe and cost-effective means for emissions monitoring and maritime surveillance and that they had been successfully used for the former purpose in 2020 by Denmark and France. EMSA recommended to carry out cross border operations for emissions monitoring, where feasible, in the same way as it has previously been done for maritime surveillance operations. EMSA highlighted the importance of using the European information sharing system Thetis-EU for recording SOx measurements and suggested to include NOx feedback should the legislation allow for this in future. EMSA concluded there was a need to have a harmonised reporting methodology and to establish an active alert scheme in Thetis-EU should this be agreed by the Sulphur community.

National case studies

1. Astrid Driesprong and Jasper van Vliet from the Netherlands Human Environment and Transport Inspectorate (ILT) described the preparation for the 2021 RPAS operations with EMSA including the difficulties in finding a deployment location. They referred to the bunker tank sampling methodology developed using sounding pipe for the SOx Global Sulphur Cap enforcement. Finally they explained the first findings under the AVES-S project to verify ship emissions by satellite, which could be used to identify high risk areas.
2. In discussion the Netherlands clarified that the satellite monitoring would not provide targets in the short term and that the first operational tests were planned within a time frame of 2 years
3. Hervé Metayer from the French Directorate for Maritime Affairs gave a presentation on the results and lessons learnt of the air emission monitoring mission carried out in 2020 in the Strait of Pas-de-Calais using EMSA’s RPAS-Service. He described the long consultation process that was needed and that had lasted 6/7 months. After this first experience, the consultation was expected to be reduced before the coming deployment in May 2021. He mentioned that the RPAS and payload was considered a mature technology and that the operations had been very valuable at both operational and technical level. In case of an extension of the 2021 mission, a new deployment site could be considered for better targeting closer to the SECA entrance area. He highlighted the opportunity of coastal State control at sea to further compliment the control by Port State authorities. He referred to the very good cooperation from port states control on the ship route plan and to the fact that monitoring of NOx emissions will be considered in future deployments.
4. Johan Mellqvist from Chalmers University (Sweden) gave an update on MARPOL Annex VI monitoring challenges and results; and referred to current research projects. He presented the different available sensors including sniffers and optical sensors and how these could be used in the different available carrier platforms (aircraft, drone, fixed sites on- and offshore). He referred to the SCIPPER project under which a.o. an ultra-sensitive laser sniffer was being developed and comparison campaigns were being carried out in Marseille and Hamburg for quality assurance.
5. In discussion the following points were made:
   1. Johan Mellqvist clarified that operations using optical sensors were limited to daylight and Andreas Weigelt mentioned that new developments including light sources were ongoing to avoid this limitation.
   2. Johan Mellqvist remarked that the ultra-sensitive sniffer was quite heavy (150kg) for the Belgian aircraft.
6. Juan Andrés Lecertúa from the Spanish Maritime Administration and Andrés Russu from SENSIA SOLUTIONS gave a presentation on Spanish ship inspections and future plans on remote monitoring operations. The inspections carried out by Port State Control Authorities since 2018 showed a positive trend on global CAP non-compliance. It was mentioned that an EMSA RPAS campaign for monitoring SOx emissions is planned for 2021 in the Gibraltar Strait. Andrés Russu introduced the pilot case study in the port of Valencia for MARPOL Annex VI compliance monitoring, with an optical imaging camera system, SIMAS, that is based on multispectral IR remote sensing and is still under development.
7. Norway mentioned that the number of inspections in the SECA area increased in 2019 while in 2020 decreased due to the COVID-19 pandemic. Norway had invested in new equipment and was using small drones to survey air emissions from ships over the fjords.
8. Ireland mentioned that together with the United Kingdom, they are considering the inclusion of the Irish Sea in the North Sea ECA. Ireland is not currently using sniffers but receives alerts from other jurisdictions. The Irish Coast Guard is exploring possibilities with Airbus to carry out monitoring operations in the near future. The PSC inspections were suspended during 2020 due to the COVID-19 pandemic.
9. The United Kingdom informed that it was a party to MARPOL Annex VI and that national legislation covered SOx and NOx emissions control. The MCA carried out the inspections at ports considering alerts from other countries. It was highlighted that a new tender for a remote sensing aircraft would be published in the summer of 2021 and would include SOx and NOx monitoring capability.

General discussions

1. In regard to monitor NOx emissions the following points were made:
   1. EU (EMSA) mentioned that under the zero-pollution initiative, there was a plan to revise the Sulphur Directive to include NOx emissions, but no details were given on the timeline;
   2. It was highlighted that PSC inspections on NOx non-compliance could only check the engine certification and therefore the outcome from the monitoring control could turn to be a key evidence; and
   3. The Chair of NSN mentioned that the network had no experience in NOx enforcement cases and that this issue would be addressed at the next meeting with a view to give an update to the OTSOPA meeting.
2. In regard to RPAS monitoring operations the following issues were raised:
   1. About the limitations on the RPAS operations, Denmark clarified that the RPAS could not fly on top of the ship, so plumes in front of the vessel cannot be covered;
   2. The EU (EMSA) mentioned that the distance between the RPAS and the vessel is often regulated by national legislation and that new European directives will facilitate in 2021 the monitoring & regulating of such operations; and
   3. Several Contracting Parties mentioned that monitoring activities should not affect the normal operations of the vessels according to their national regulations, so ships were not requested to alter their speed regime. Norway clarified that ships could be asked to reduce their speed when monitored inside the fjords where they were not navigating at full speed and therefore the reduction was not considered to be significant.
3. Concerning fixed stations, it was clarified that the Bonn Agreement was responsible for monitoring emissions at sea and nearshore, e.g. at port entrances, but not in ports or inland waters.
4. Spain proposed that the Bonn Agreement could send a formal letter to the EU Sulphur Group to receive statistical analysis from Thetis-EU on SOx monitoring reporting for the BA area.

Funding opportunities

1. The Chair informed the participants on the ongoing process within the Bonn Agreement, following an invitation by the EU and a request by the Contracting Parties, to identify Bonn Agreement Funding Priorities and notify these to the Commission. The participants were informed that in this process, MARPOL Annex VI work had been evaluated as a short-term funding priority.
2. The EU (EC) informed on the funding possibilities under the European framework. Presently there were 3 ongoing projects related to air emissions from shipping under different EU funding instruments (INTERREG, LIFE, Horizon), which made it difficult for a new project proposal on this issue to be funded under these programs. Funding under DG ECHO could be an option if the necessary links were made, such as building on the results of previous projects (risk analysis), relating the project with public health aspects, considering its contribution to the prevention of disasters, addressing emissions monitoring together with oil/HNS monitoring to reduce costs, etc. The upcoming DG ECHO call is expected to be published by the end of February 2021 with a deadline to submit proposals by May, which meant that projects would actually be starting in early 2022. It was clarified that if the deadline for the present Call was too short, there would be another opportunity in the next DG ECHO Call (early 2022).
3. In discussion the following points were made:
   1. The Chair highlighted that submitting a project proposal required a lot of work such as developing its contents and prioritising the working tasks and nominating the project coordinator and task leaders;
   2. It was suggested that monitoring NOx emissions could be included in a future project proposal under the environmental funding instruments as it was not addressed under the ongoing projects;
   3. Some issues were identified as potential work packages for a project proposal such as risk analysis to identify high risk areas, validation experiments towards harmonisation and preparation of a Chapter on MARPOL Annex VI to be included in the Counter Pollution Manual;
   4. Some Contracting Parties felt there was a need to discuss at a national level the interest in taking part in this potential project proposal;
   5. The Chair concluded that there was a certain level of maturity within the Bonn Agreement to address already some recommendations by the working groups and to consider to submit a project proposal for the next DG ECHO call in early 2022; and
   6. The EU suggested that the Bonn Agreement could invite other regional agreements at the next Inter-Secretariat meeting to participate in the potential project proposal and the Chair mentioned that other regional agreements could be also welcomed to take part as stakeholders.

Conclusions and way forward

1. Participants were organised in breakout groups to address the strategic, operational and technical topics included in Annex 4. After constructive discussions in the breakout groups and in plenary the following conclusions were agreed:
   1. To establish two working groups to address (1) strategic & operational aspects and (2) technical aspects, respectively.
   2. MAVI Strategic & Operational WG to cover the recommendations included in Annex 1.
   3. MAVI Technical WG to cover the recommendations included in Annex 2.
   4. Both WGs to extract actions from the recommendations; to identify those to be addressed quickly by the WG (quick win) and those that need extra resources through funding opportunities; and to prioritise them.
   5. To allocate half a day for MARPOL Annex VI discussions in the OTSOPA meetings.
2. The following actions were agreed as a pathway progress on the inclusion
   1. The Chair of OTSOPA and the Secretariat to present the outcome of the Workshop at the 17th Inter-Secretariat meeting on 24-25 February 2021.
   2. The Bonn Agreement Secretariat to request to BA heads of delegation by March 2021 to nominate representatives for the WGs and to propose co-convenors to lead the WGs (Co-Leads).
   3. The ICG MAVIEWS Co-convenors to prepare a letter describing the scope of work of the WGs and the estimated resources so that it can be attached to the request sent by the Secretariat.
   4. Contracting Parties to provide the national representatives of the WGs and to express their willingness on co-leading by mid May 2021.
   5. The Chair of the Workshop with the support of the Secretariat to present at OTSOPA 2021 the outcome of the Workshop including the agreed recommendations.
   6. The ICG MAVIEWS Co-convenors to prepare a proposal for OTSOPA 2021 on the way forward for emissions monitoring under MARPOL Annex VI, including a brief outline of possible areas for a project proposal towards early 2022 EU calls.
   7. OTSOPA 2021 to discuss and agree on a way forward to for emissions monitoring under MARPOL Annex VI and to decide upon practicalities for the WGs (including Co-Leads).
3. All participants thanked the Chair, the Co-convenors, the Secretariat and the breakout group moderators and rapporteurs for the organisation of the Workshop, which was considered a successful kick-off to address cooperation on surveillance for air emissions from shipping with respect to the requirements of MARPOL Annex VI in the Bonn Agreement area.

MAVI STRATEGIC & OPERATIONAL WG

Recommendations

* + 1. Organise joint offshore **sub-regional surveillance programs** building on existing capacities and sharing assets and costs with neighbours. Consider a scaled approach: national programs and sub-regional coordination→ Sub-regional \ regional programs→ inter-regional level.
    2. Develop a **surveillance strategy** building on existing national expertise, experience and knowledge from countries with a well-established policy.
  1. Use the fully available toolbox for emission control provided by CPs and EMSA including airborne-, ship- and land-based systems.
  2. Promote remote measurements at sea in the BA area, looking for synergies between different assets:
     + measure many ships in a few high traffic density locations including port entrances, using airborne, shipborne and fixed sensors
     + fewer ships but in many locations (unpredictable approach) using airborne/shipborne sensors.
  3. Identify priority areas (high traffic density, ECA, ECA borders) or high-risk areas using satellite information or outcome from a risk analysis project.
  4. Develop and maintain an inventory of assets/capacities among the Bonn Agreement.
  5. Coordinate a regional mission once a year for using EMSA RPAS combined with other national assets (TdH[[1]](#footnote-1)/CEPCO[[2]](#footnote-2) type).
     1. Use **EMSA sniffer drones** in joint campaigns under the Bonn Agreement and share experience on the drone deployments among CPs to increase knowledge.
     2. Consider the **use of drones** as platforms for surveillance operations:
  6. Address the difficulties in obtaining permits to fly liaising with EMSA and EASA in support of an EU harmonised approach (Explore standard operating procedures)
  7. Consider the advantages (safety, long endurance, attractive price), effects (“captains getting nervous” effect), possibilities (night flights) and limitations on the use of drones (bad weather, range of RPAS, possible flying obstacles, speed of certain vessels).
  8. Agree on methodologies for taking measurements with sniffer drones (i.e. contacting the vessel and asking them to slow down -dependent on the drone used-, flying over bulk carriers or passengers ships).
     1. Prepare a **chapter under the CPM and/or a specific handbook for MARPOL Annex VI** using the structure of the AOH, and covering the following information on SOx and NOx monitoring:
  9. Methodology on instrumentation and deployment including calibration before operational use;
  10. Reporting procedures and data processing;
  11. Best practice for airborne surveillance;
  12. List of competent authorities’ focal points.
      1. Build on **best practices** from previous **projects** such as CompMon and SCIPPER.
      2. **Develop a harmonised strategy** considering different approaches dependant on the area covered and on the focused/widespread operations.
  13. Agree on thresholds indicating non-compliant ships and on acceptance of evidence/reports[[3]](#footnote-3).
  14. Undertake regular intercomparison work of measurement systems[[4]](#footnote-4).
  15. Decide the need to develop a specific reporting template for MARPOL Annex VI, considering PSC needs and Thetis EU reporting attributes.
      1. **Use of Thetis EU** database by CPs to:
  16. Exchange information to improve reporting of compliant and non-compliant measurements and encourage CPs to submit this data.
  17. Propose harmonised or common thresholds to the sulphur community for generating alerts in the system.
  18. Encourage further developments in Thetis-EU to make it a more active alerting system, make it more accessible to Competent Authorities, and have automatic email alerts.
  19. Propose to the PSC community the exchange of information based on NOx measurements in Thetis to support MARPOL Annex VI enforcement and discuss how to include NOx measurements in Thetis in the future (Pending the potential development of EU regulations on NOx).
  20. Consider if Thetis EU could better facilitate data sharing (including raw data) and be used for statistical analyses and annual reporting within the BA (for SOx and NOx in the future).
  21. Consider authorisation issues.
      1. Consider the submission of a **project proposal** under EU funding instruments.
      2. Exchange information with the **North Sea Network of Investigators & Prosecutors (NSN)**.

MAVI TECHNICAL WG

Recommendations

1. **Harmonize the output of different sensor data** to compare results:
   1. Agree on a common methodology for the qualification of errors in measurements:
      * Qualitative approach (flags including the degree of confidence)
      * Quantitative approach (values including uncertainties)
   2. Define a common approach to calibrate sniffers.
   3. Agree on alert thresholds: Start from IMO thresholds 0,1% and 0,5% plus an additional margin.
2. Consider the **recent sensor developments**, also for drones (e.g. optical/laser sensors).
3. Run (regular) **validation campaigns** combining different sensors at BA level (for both, SOx and NOx) to facilitate sharing of data and methodologies which will help identify commonalities in order to check uncertainties between sensors.
4. Take into account national experience, ongoing operations and their recommendations, and the outcome of previous **projects** such as SCIPPER and COMPMON.
5. Promote taking **NOx remote measurements,** building upon the experience of Belgium and Germany.
   1. Sharing best practices on NOx measurements and reporting
   2. Define operational procedures to make NOx measurements more reliable (contacting the vessel to get information on type of fuel, specific consumption rate, and power; taking several measurements as for SOx, comparission of measurement results with emission test results).
   3. Consider certification/standardization for SOx and NOx measurements eg. creation of CEN[[5]](#footnote-5) WG).

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| MARPOL ANNEX VI Experts Workshop  Programme  *Date:* 2-5 February 2021  *Start of the workshop:* 09:00 UTC/10:00 CET on Tuesday, 2 February 2021  *Expected close of the workshop:* 11:00 UTC/12:00 CET on Friday, 5 February 2021  *Online conference via WebEx*  *Workshop Chair:* Ronny Schallier (EAP Chair)  *Co-Convenors: Ward Van Roy (MUMM), Stephanie Seddon-Brown (EMSA), Andreas Weigelt (BSH)*  *Minutes: Bonn Agreement Secretariat*  *Speakers will receive guidelines by e-mail*  *Participants will receive break-out session guidelines by e-mail*  DAY 1: Tuesday 2 February 2021 | | | | |
| 09:45 | | Workshop opening and registration (login) | | |
| **1. Introduction** | | | | |
| 10:00 | | Welcome | | Ronny Schallier (WS Chair) |
| 10:05 | | * 1. State of play in the Bonn Agreement framework: * Decision agreed in BONN 2019; * Ratification adopted BA text by CPs; * BASAP 2019-2025; | | Torben Iversen (OTSOPA Chair) |
| **2. Keynote Speakers** | | | | |
| 10:15 | | 2.1 Regulation:   * Overview of International and EU ship emission regulations; * PSC needs in regard to Global sulphur cap. | | Christophe Swolfs (BE FPS Mobility) |
| 10:30 | | 2.2 Enforcement of MARPOL Annex VI cases | | Ewald Brandt (NSN Chair) |
| 10:45 | | 2.3 Necessary BA documentation and reporting procedures (to cover MARPOL Annex VI) | | Ove Njoten (Kystverket) |
| 11:00 | | Plenary discussion: Questions and answers | | |
| 11:15 | | Coffee Break (15’) | | |
| **3. Update from Contracting Parties on MARPOL Annex VI** | | | | |
|  | | 3.1 Emission monitoring strategies | |  |
| 11:30 | | BE - Airborne surveillance | | Ward Van Roy (MUMM) |
| 11:45 | | DE - Fixed sniffer stations | | Andreas Weigelt (BSH) |
| 12:00 | | DK - Helicopter and mini sniffer emissions operations | | Therese Christensen (DMA) and Clea Henrichsen (MFVM). |
| 12:15 | | EU - RPAS/Thetis-EU service/(sub) regional monitoring | | Olaf Trieschmann and Sergio Alda (EMSA) |
| 12:40 | | Plenary discussion: Questions and answers | | |
| 12:55 | | Lunch break (45’) | | |
|  | | 3.2 National case studies | |  |
| 13:40 | | NL – Fuel sampling for the Global cap Enforcement, preparation for the 2021 RPAS operations with EMSA, AVES-S ship emission satellite monitoring project | | Astrid Driesprong (ILT) and Jasper Van Vliet (ILT) |
| 13:50 | | FR – Feedback on the monitoring actions carried out by the Maritime Affairs Directorate | | Hérve Metayer (DGITM) |
| 14:00 | | SE – Future MARPOL Annex VI challenges and current projects (Results SCIPPER and Clean shipping conference) | | Johan Mellqvist (Chalmers University) |
| 14:10 | | ES – Spanish ship inspections and future plans on remote monitoring operations | | Juan A. Lecertúa (DGMM) |
| 14:20 | | NO, IE and UK will give a short national verbal update | | CP HOD |
| 14:40 | | Plenary discussion: Questions and answers  In case not all question can be answered the workshop will be extended with 30 min | | |
| 15:00 | | End of Day 1 | | |
| DAY 2: Wednesday 3 February 2021 | | | | |
| 10:00 | 4. Wrap-up Day 1 | | BA Secretariat | |
| 10:15 | 5. Introduction to Day 2: key challenges for a coordinated Marpol Annex VI compliance monitoring | | Ronny Schallier (WS Chair) | |
| **6. Breakout group sessions to discuss Strategic, Operational and Technical questions and formulate recommendations on MARPOL Annex VI monitoring in a Bonn Agreement framework** | | | | |
| 10:25 | 6.1 Session 1: Strategic questions:   * Introduction to questions (as in ToR) for breakout groups * Practicalities break-out groups * Aspects related to cross border operations * Optional additional questions based on the questions from the participants | | Stephanie Seddon-Brown (EMSA) | |
| 10:40 | Discussion in break-out groups (65’):   * 4 Groups * Tour de table (5’) * 11-12 participants per group from 3 backgrounds (Policy, Operations, Technical) * 1 moderator per group [Ward Van Roy (BE), Andreas Weigelt (DE) Stephanie Seddon-Brown (EU), Susanne Heitmuller (DE)] * 1 rapporteur per group [Clea Henrichsen (DK), Michiel Visser (NL), Federico Navarro Cabrera (ES), Johan Mellqvist (SE)] | | | |
| 11:45 | Coffee break (15’) | | | |
| 12:00 | Session2: Operational questions:   * Introduction to questions (as in ToR) for breakout groups | | Ward Van Roy (MUMM) | |
| 12:10 | Discussion in break-out groups (60’) | | | |
| 13:05 | Lunch break (45’) | | | |
| 13:50 | Session 3: Technical questions:   * Introduction to questions (as in ToR) for breakout groups | | Andreas Weigelt (BSH) | |
| 14:00 | Discussion in break-out groups (60’) | | | |
| 15:00 | End of Day 2 | | | |
| DAY 3: Thursday 4 February 2021 | | | | |
| 10:00 | Wrap-up Day 2 | | BA Secretariat | |
| 10:05 | Introduction Day 3 | | Ronny Schallier (WS Chair) | |
| 10:15 | Reporting on Session 1: Strategic questions   * Reporting to plenary by group rapporteur: 10 min/group * Plenary discussion | | | |
| 11:05 | Coffee break (15’) | | | |
| 11:20 | Reporting on Session 2: Operational questions   * Reporting to plenary by group rapporteur: 10 min/group * Plenary discussion | | | |
| 12:10 | Reporting on Session 3: Technical questions   * Reporting to plenary by group rapporteur: 10 min/group * Plenary discussion | | | |
| 13:00 | Lunch Break (45’) | | | |
| 13:45 | 1. EU funded project opportunities  * Key challenges/main issues on 3 topics (Strategic, Operational, Technical) | | Ronny Schallier (WS Chair) | |
| 14:00 | 1. Discussion on the way forward:  * Potential project, consortium including the coordinator role, suitable calls for proposals? * Possible MARPOL Annex VI Working group? * Allocating MARPOL Annex VI discussions in the OTSOPA meeting. | | | |
| 15:00 | End of Day 3 | | | |
| DAY 4 Friday 5 February 2021 | | | | |
| 10:00 | 1. Workshop conclusions (in accordance with the ToR) | | Ronny Schallier (WS Chair) and Torben Iversen (OTSOPA Chair) [tbc] | |
| 10:15 | 1. Discussion in plenary | | | |
| 12:00 | End of workshop | | | |

Discussion topics of the breakout groups

Strategic discussion topics

* *Should the development of sub-regional surveillance programmes be considered (if so, which sub-regional areas should be considered)? Or CPs could currently tend more towards the development of national programmes (and then possibly a region-wide coordination)?*
* *What should be the capacity (reasonable effort) of a BA region-wide MARPOL Annex VI surveillance strategy?*
* *Could special consideration be given to the use of EMSA sniffer drones for the monitoring of MARPOL Annex VI, for instance in a sub-regional context? Which role could the BA play?*

*Operational* discussion topics

* *Should the CPM[[6]](#footnote-6) and/or AOH[[7]](#footnote-7) be updated to include MARPOL Annex VI surveillance (what/how/who)?*
* *Which (harmonized) monitoring strategies and reporting procedures will have to be developed to take into account the specific requirements for the follow-up of MARPOL Annex VI observations?*
* *Special considerations can be given to the use of the EMSA Thetis-EU database for the harmonized reporting of remote measurements, exchange of SOx emission alerts and ship inspection results.*

Technical discussion topics

* *How to harmonize the output of different sensor data (e.g. uncertainties and quality of emission measurement data) and subsequent use of a threshold for reporting?*
* *Discuss technical considerations/restrictions related to the use of sniffer drones.*
* *Is it possible to use remote measurements for NOx compliance monitoring and if so, how can this be approached?*

List of participants

| **Name** | **Organisation** | **Country** |
| --- | --- | --- |
| Eric Donnay | DG Environment | Belgium |
| Christophe Swolfs | BE FOD Mobility | Belgium |
| Bart Colaers | BE FOD Mobility | Belgium |
| Marleen Van Noppe | BE FOD Mobility | Belgium |
| Frederik Tack | Royal Belgian institute for Space Aeronomy | Belgium |
| Ronny Schallier | MUMM/RBINS | Belgium |
| Ward Van Roy | MUMM/RBINS | Belgium |
| Kobe Scheldeman | MUMM/RBINS | Belgium |
| Kathleen Wouters | FOD Mobility | Belgium |
| Andreas Weigelt | BSH | Germany |
| Susanne Heitmüller | BSH | Germany |
| Annika Grage | BSH | Germany |
| Katrin Ewert | BSH | Germany |
| Jörg Beecken | BSH | Germany |
| Dirk Strelow | Federal Police | Germany |
| Ina Lussenhop | German Customs Administration | Germany |
| Ewald Brandt | NSN | Germany |
| Heinz Elsen | Waterways Police Lower Saxony | Germany |
| Uwe Heeske | Waterways Police Lower Saxony | Germany |
| Torben Iversen | Danish Military | Denmark |
| Simon Rewers Hansen | Defence command Denmark J3 AIR | Denmark |
| Therese Bornemann Christensen | DMA | Denmark |
| Nils Nordholm | EPA | Denmark |
| Bettina Knudsen | Explicit | Denmark |
| Clea Henrichsen | MFVMI | Denmark |
| Asta Mackeviciute | EU | European Commission |
| Stephanie Seddon-Brown | EMSA | EMSA |
| Lito Xirotyri | EMSA | EMSA |
| Sergio Alda | EMSA | EMSA |
| Mercedes Garcia Horrillo | EMSA | EMSA |
| Olaf Trieschmann | EMSA | EMSA |
| Andrea Tonini | EMSA | EMSA |
| Jose Gata | EMSA | EMSA |
| Federico Navarro | Directorate Maritime affairs | Spain |
| Juan A. Lecertua | MITMA | Spain |
| Hernán del Frade | MITMA/DGMM | Spain |
| Gracia Alburquerque | Salvamento Marítimo | Spain |
| André Russu | SENSIA | Spain |
| Hérve Metayer | Directorate for Maritime Affairs | France |
| Laurent Buignet | French Coast Guard | France |
| Guillaume Maes | Directorate for Maritime Affairs | France |
| Mari-Vorgan Devaux | Directorate for Maritime Affairs | France |
| Eric Guyot | TELOPS France | France |
| Pertti Normia | The Finnish Border Guard/Legal Department | HELCOM |
| Brendan Curtin | Coastguard | Ireland |
| Dave McMyler | Irish Coast Guard | Ireland |
| Conor Kelly | Irish Coast Guard | Ireland |
| Michael Kennedy | Department of Transport, Marine Survey Office | Ireland |
| Micháel O'Toole | Irish Coast Guard | Ireland |
| Astrid Driesprong | ILT | Netherlands |
| Lex Oosterbaan | Rijkswaterstaat Zee & Delta | Netherlands |
| Michiel Visser | RWS | Netherlands |
| Jasper Van Vliet | ILT | Netherlands |
| Ove Njoten | NCA | Norway |
| Svein Erik | NMA | Norway |
| Franck Lauwers | REMPEC | REMPEC |
| Johan Mellqvist | Chalmers | Sweden |
| Oskar Feltenstedt | SE CG | Sweden |
| Sam Williams | MCA | United Kingdom |
| Carolina Dopico Gonzalez | MCA | United Kingdom |
| Jerry Connors | MCA | United Kingdom |
| Ben Ng | MCA | United Kingdom |
| Hazel Christie | MCA | United Kingdom |
| Neil Chapman | MCA | United Kingdom |
| Laura De la Torre | Bonn | Bonn Agreement |
| Olle Akesson | Bonn | Bonn Agreement |

1. Tour d’Horizon programme for aerial surveillance of offshore oil and gas installations [↑](#footnote-ref-1)
2. Co-ordinated Extended Pollution Control Operations [↑](#footnote-ref-2)
3. In coordination with MAVI Technical WG [↑](#footnote-ref-3)
4. In coordination with MAVI Technical WG (Recommendation 3) [↑](#footnote-ref-4)
5. European Committee for Standardization [↑](#footnote-ref-5)
6. Counter Pollution Manual [↑](#footnote-ref-6)
7. Aerial Operations Handbook [↑](#footnote-ref-7)