

## **Minutes of the fourth meeting of the Technical Subgroup (TSG) Noise, Dublin October 2012**

*Participants:* Michael Ainslie, Michel André, Susanne Beck, Fabrizio Borsani, John Dalen, René Dekeling, Pat Duggan, Leo de Vrees, Thomas Folegot, Frederieke Knopperts, Russell Leaper, Joanne O'Brien, Jukka Pajala, Stephen Robinson, Lisa Shields, Peter Sigray, Gerry Sutton, Mark Tasker, Frank Thomsen, John Young.

*Not present:* Mathias Andersson, Maria Boethling, Karsten Brensing, Melanie Eickmeier, Alexander Liebschner, Mary Meacle, Sandra van der Graaf, Stefanie Werner, Albert Willemsen.

### **1. Welcome**

Mary Meacle and Pat Duggan (EPA, Ireland) organized the meeting in Dublin. Pat Duggan welcomed the TSG Noise to the Ministry of Environment, Heritage and Local Government in Dublin.

### **2. EU process and objectives of the TSG Noise for 2012**

Leo de Vrees, European Commission (EC), thanked the representatives of Ireland for organizing the meeting. The objective of the fourth meeting was to look at the progress made in terms of tasks, timeline and working groups. He pointed out that by 15 October all Member States (MS) have to hand in their reports, and only Belgium, Cyprus and Germany have sent their reports so far. Two MS, Belgium and Germany, have already set targets for impulsive noise. All formal reports from MS are available online at <http://www.eionet.europa.eu> (often in the language of the MS). Leo stated that if MS are not able to give a description of Good Environmental Status (GES) or targets, the EC will ask them to explain how they are planning to reach that goal. Besides that, all MS have to hand in and design a monitoring plan and program in 2014.

Mark Tasker promised to cut out the relevant parts of MS reports for TSG Noise.

Leo de Vrees reported about two new tenders. Firstly, the project Emerging Pressures Framework. Three consortia are involved in this project, which will 1) analyze and assess human activities in the marine environment, 2) identify possible cost-effective measures and 3) provide administrative guidance. Leo explained that the emerging pressures that are identified to have an impact on the marine environment are marine litter, underwater noise, invasive species and ocean acidification. The project can support the TSG Noise in their work

Secondly, a project about environmental impact of noise, vibrations and electromagnetic emissions from marine renewables was identified. This project will be published soon by DG RTD.

#### **Tasks:**

- **Mark Tasker will collect all relevant parts of MS reports for TSG Noise.**

### **3. Agenda and aim of the meeting**

René Dekeling summarized the status of TSG and the focus of work in 2012/2013. The overall aim of this meeting was to agree on the total work plan, scope and timeline of the next TSG report.

Mistranslations: Mark Tasker drew attention to the e-mail of Fabrizio Borsani about mistranslations, who had noticed that significant translation issues are present in the French, Italian, Portuguese and Spanish versions of the Commission Decision document (CD). He thought that the translation issue should be brought to attention of the EC. Leo de Vrees explained that the language of the document in which the negotiations took place is the official paper, in this case the English version. Leo advised to report this issue in the Marine Strategy Coordination Group (MSCG) in which all MS are present, and ask MS to look at the versions of their own language to correct mistranslations. Last

meeting, TSG Noise proposed a workshop to address noise monitoring and to involve also South European MS. Two MS, namely Spain and Slovenia, presented themselves as candidates to organize the workshop. In this workshop, the translation issues can also be raised.

**Tasks:**

- **TSG Noise has to hand in a progress report as input for the MSCG end of October. Some particular issues for the progress report are 1) a 'trend' only is not sufficient to describe GES 2) mistranslations in the CD and other documents, 3) offer to host a workshop.**

**4. Monitoring guidance for impulsive noise (M1)**

Joanne O'Brien from the Galway Mayo Institute of Technology (GMIT) presented the GMIT Noise Project. Mark remarked that the project also relates to ambient noise and that the objectives of the GMIT project are beyond the requirements of the EC. Joanne responded that the project has very clear objectives.

Gerry Sutton of the Coastal Marine Research Centre (CMRC) presented the CMRC Noise Project. Lisa Shields (Ministry of Environment, Heritage and Local Government, IE) added that all data and reports of these projects will be publicly accessible and available online.

Subsequently, Thomas Folegot presented noise data for the CMRC project.

**M1a. Guidance on threshold setting and source characterisation**

Michael Ainslie presented a way forward to set thresholds, based on the document about guidance on threshold setting and source characterisation written by René Dekeling and Michael Ainslie. The presentation focussed on bringing consensus on the methodology for obtaining source level thresholds and proxies for source levels.

In the discussion the following points were noted:

- Mark Tasker felt that we should hold on to a certain level of pragmatism; and keep in mind that it is possible that few MS develop a register. If the target is too ambitious, we risk getting no input from the MS. We should aim to make it easy for MS to produce data.
- Stephen Robinson made clear that sensitivity of numbers for thresholds should be put on firm basis. René Dekeling responded that they tried to select logical numbers. It was suggested that paragraph 10.6 has not enough scientific basis at what range behavioural response is significant. René pointed out that research done by Southall *et al.* was used to come to these values. Stephen indicated that these values may be too conservative, as they are based on the size of the grid cells.
- Mark Tasker asked which sources should be included in the register, and Russell Leaper pointed out that everything, also sonar and explosions should be included. Other TSG members thought that this would likely be asking too much and would not get support in all MS.
- The proposal for setting thresholds related these to the range from a source ( $R_{ps}$ ) defining a zone within which noise levels would be likely to cause animals to leave that zone.  $R_{ps}$  should be chosen to represent the distance of a displacement that would be considered a concern e.g. if displacing an animal by less than 100m is deemed acceptable but 100m or more is thought to be a problem, then  $R_{ps}$  should be set at 100m. A range of 300m for  $R_{ps}$  was considered conservative by TSG Noise for species of primary concern such as harbour porpoise. It was agreed that 1000m for  $R_{ps}$  was more appropriate based on what is known of the feeding ecology of the harbour porpoise.

- Source strength is the correct word used in airgun noise description, confirmed by John Young

All members of TSG Noise agreed on:

- The methodology for the register
- To use 1000m as  $R_{ps}$
- Principles of the use of proxies

**Tasks:**

- **René Dekeling and Michael Ainslie will put in scientific basis (papers) for the numbers in the M1a document.**
- **Frank Thomsen will provide scientific basis for 1000m Rps by sending a paper of Kastelein *et al.* to TSG Noise.**

**M1b. Way forward for the noise register**

Mark Tasker proposed that the way forward for the noise register should be based on the registers developed by three MS (IE, NL, UK). The guidance for this register should as far as possible ensure common standards for all MS. Of the three MS who handed in a register, only Ireland has tested and commented on the UK version of the register. He stated that the current version of the noise register should be an example for the final version for the register.

Leo de Vrees advised to use the proposed workshop. In the proposed workshop the TGS Noise (progress) report will be used as input. Leo also pointed out that the register will not be relevant for each MS as some MS already made their monitoring programme. John Dalen will ask if Norway can also participate in the noise register.

**Tasks:**

- **The chairs will prepare the advice for the workshop. The advice of the TSG Noise will be used in preparing the workshop.**
- **Mark Tasker will make a proposal for the register, based on received input from MS so far.**
- **John Dalen will ask if Norway can participate in the register.**

**M1c&d. Baseline and guidance for interpretation**

The document made by Sandra van der Graaf and René Dekeling was discussed. Leo de Vrees pointed out that MS have difficulties in defining the assessment area. Habitat suitability could be incorporated to assess how relevant the loss of a certain area is. Habitat loss can be expressed in percentage, as this is biologically most relevant. Mapping is interesting for combining noise register and porpoise distribution and TSG Noise agreed that this would be valuable information.

TSG Noise agreed on:

- Looking at percentage habitat loss and distribution of species
- Density data should be coupled to acoustic data
- PCoD and other projects will help to get percentage and targets in the future
- The main objective of M1c&d document is to provide additional information to monitoring guidance

**Tasks:**

- **All members of TSG Noise have to send their comments on the M1c&d document to Sandra in November.**

**5. Monitoring guidance for ambient noise (M2)**

René Dekeling expressed his concerns relating to the overarching ambition for ambient noise and the joint understanding of the term 'trend'.

There is still a question on whether only a 'trend' should be measured, or if noise mapping is the desired output. In the discussion, a division was made between aspects that are obligatory to measure for MS and aspects that are advised to be measured by TSG Noise:

- Indicator 11.2.1: MS should monitor trends
- Trends indicate whether sound pressure rising or falling or has no overall trend
- TSG guidance will describe how MS implement 11.2.1

### **Advice**

- TSG Noise agreed that a trend only is not sufficient to describe GES
- To describe GES actual levels, based on wider overview of the area, created by combination of modelling/ mapping will be needed
- Best approach to describe actual levels will be described in TSG report, will provide option for MS to make this further step
- Separate chapter will describe cost-effective way to monitor actual levels (indicator 11.2.2)

### **The BIAS project**

Peter Sigray presented the aims and goals of the BIAS project and pointed out that the data will be publicly available. He explained that HELCOM is not part of this project, as they decided to not be involved in BIAS. René Dekeling commented that there is much overlap in the BIAS project and TSG Noise. The BIAS project can be seen as a pilot experiment. Peter will write a document on what kind of information the BIAS project needs from TSG Noise and what BIAS can mean for TSG Noise.

### **Tasks:**

- **Peter Sigray will write a document about needs and returns from BIAS to TSG Noise.**

### **M2a. Specifications for performance**

Stephen Robinson presented the results of a project to investigate the system performance of measuring devices currently on the market, and concluded that some of these perform inadequately. Michel André asked how TSG Noise can deal with different measuring devices and kits, as they can produce different results. TSG Noise decided to address this issue as 1) to put Stephen's main message strongly in the progress report, 2) address this issue through regional sea convention (Leo de Vrees), and 3) Stephen Robinson will provide a list of parameters that MS need to get from manufacturers.

### **Tasks:**

- **Stephen Robinson will make an overview of the main findings and advise on what specifications MS need from manufacturers, and this will be added to the progress report for the MSCG.**

### **M2b. Averaging method**

Michael Ainslie presented three different averaging methods; the arithmetic mean (AM), geometric mean and median. Different opinions were expressed on which method to use, which sounds to include or exclude and what the definition of the word "trend" is. Most discussion was around the advantages and disadvantages of the arithmetic mean versus the advantages and disadvantages of the median.

In the discussion, the following points were noted:

- Some members of TSG Noise disagreed on choosing one method for averaging, whereas others stated that it is important to advise MS on one method in order to compare the results from the different regions.

- Local, loud events such as passing ships shouldn't be excluded as they are part of ambient noise. Besides that, there is no simple technique to exclude such events from data.
- It was stated that boxplots in combination with the median can be a tool to look at variation and spread of the data.
- TSG Noise discussed the necessity to remove some transients in measuring and modelling ambient noise.

TSG Noise agreed on the following statements:

- The agreed definition of "trend" in relation to Indicator 11.2 is that of the TSG report of February 2012, (i.e.: 'trend' refers to year-to-year (or longer) changes in ambient noise levels).
- A suitable definition of Ambient Noise for indicator 11.2 should include all sources of sound other than self noise.
- The agreed definition of Ambient Noise of TSG Noise for the purpose of Indicator 2 is 'All sound except self noise'. The agreed averaging method for annually averaged noise level is "arithmetic mean", yet establishing the statistical significance of a trend requires the distribution in the form of percentiles.
- TSG Noise concluded that the use of the arithmetic mean would include some sounds not relevant to departures from GES; at the same time, TSG Noise concluded that the use of the median might exclude some sounds relevant to departures from GES.

Given these different advantages and disadvantages of different methods, in the time available during the meeting it was not possible to come to agreement whether it is desirable to choose an averaging method that is insensitive to snapshot duration.

**Tasks:**

- **Michel André, together with Michael Ainslie, will make a document and the working group, as also other TSG Noise members, will comment on this.**

**M2c. Presentation of noise maps**

Michael Ainslie showed noise maps of the Dutch Continental Shelf of the North Sea, based on the third octave band (125 Hz).

Subsequently, Thomas Folegot presented noise maps of English Channel.

**M2c. Number, location and distribution of measuring and indicator locations, including the use of sound mapping and modelling**

Monitoring stations:

Frank Thomsen explained that the scope of the monitoring and the essential points to be considered is based on the minutes of last meeting and pointed out that some urgent questions are still unanswered. He explained that one of the major questions is the number of monitoring stations per region. The number of 5 monitoring stations, as mentioned in the document is an absolute minimum to get any statistically relevant results and should be reconsidered based on regions and statistics (model validation, power). Some members of TSG Noise thought that every MS should make an inventory of existing monitoring stations and include them where possible.

Gerry suggested that mobile measuring platforms (wave gliders) should be considered to minimize fixed stations and to get more information on the region, as mobile platforms are more flexible and can provide real-time data. Mark Tasker responded that wave gliders are not ready yet to be used in this monitoring plan, but should be kept in mind for future monitoring plans. Gerry Sutton also pointed out that at the start of monitoring; more stations are needed to validate the model in areas as for instance the Baltic Sea.

Mark Tasker and Leo de Vrees pointed out that TSG Noise can advise MS on designing a monitoring plan and map and provide guidance.

Mapping and modelling:

A short discussion followed whether mapping is required for MS and how many monitoring stations should be considered:

Mark Tasker stated that mapping is not required by the CD, but that mapping and modelling is desirable in order to reach GES. TSG Noise will come up with arguments for the advantages of mapping and modelling. Frank Thomsen and Gerry Sutton pointed out that masking is only visible by mapping, and therefore essential. Sound mapping should be done by using map layers.

**Due to lack of time, further issues were not discussed and will be addressed in the next meeting.**

**6. Follow-up**

Language issue:

The question arose whether the TSG Noise report can be translated in other languages by the EC. Leo de Vrees pointed out that this will probably not be the case, as the limit for translation of reports is 15 pages.

**Tasks:**

- **TSG Noise has to make another document with a summary of recommendations for MS of less than 15 pages which can be translated in other languages.**

Any other business:

- Michael Ainslie pointed out that the corrected terminology and symbols should be used for technical details for the final report. To help ensure such corrections are not changed back by the report editor, they will be supported by a note.
- Leo de Vrees pointed out that the final report of TSG Noise should be finished in March/April of 2013.
- Jukka Pajala proposed that the next meeting will be held in Helsinki, Finland on the 12<sup>th</sup> and 13<sup>th</sup> of February 2013.
- All presentations showed in the meeting will be made available on SharePoint by Sandra van der Graaf.