

## **Minutes of the third meeting of the Technical Subgroup (TSG) Noise, Vilanova 2012**

*Participants: Michael Ainslie, Michel André, John Dalen, René Dekeling, Leo de Vrees, Melanie Eickmeier, Thomas Folegot, Alexander Liebschner, Mary Meacle, Jukka Pajala, Stephen Robinson, Mark Tasker, Frank Thomsen, Sandra van der Graaf, John Young. Not present: Mathias Andersson, Maria Boethling, Karsten Brensing, Russell Leaper, Peter Sigray, Stefanie Werner, Albert Willemsen.*

### **1. Welcome**

Michel André (UPC, Spain) organised the meeting in Vilanova. He welcomed the TSG Noise to Vilanova.

### **2. EU Process**

Leo de Vrees, European Commission, thanked the TSG for their commitment into drafting the previous report. The report will be presented to the Marine Directors in June. It is an important piece of work because knowledge on underwater noise is scarce. He also stated that many Member States had indicated that they would follow the advice of TSG Noise on monitoring, e.g. on setting up a register of impulsive sound sources. The Marine Directors would like to spend some time on noise and litter in their meeting in June.

Based on the report and the roadmap in the report, Terms of Reference were drafted and slightly amended by the European Working Group on Good Environmental Status (WG GES). WG GES also added items on impacts of underwater noise and on mitigation.

Leo pointed out that from October there will be money available to support the TSG. This support could include organising meetings and writing technical guidance, among others. The money will become available from the Directorate-General for Maritime Affairs and Fisheries (DG Mare), under the Maritime Policy. Most of the money from the Maritime Policy will go into the European Marine Observation and Data Network (EMODnet). A steering group with Member States (MS) representatives will be set up. It may be worthwhile checking whether TSG Noise could receive money under EMODnet for the development of the noise register. Frank Thomsen asked how this work is linked to the Topic Centres<sup>1</sup> and the European Environment Agency (EEA).

Leo pointed out that most MS are now finalising their reports under art 8, 9 and 10 of the MSFD (Initial Assessment, Determination of Good Environmental Status (GES) and Targets and Indicators), which has to be reported to the commission at the very latest by 15 October 2012. Some MS have already gone into public consultation (UK, DE, FI) or will do so soon (NL). Not much will change at this stage. The European Commission has to assess the reports within 6 months; they will do this using standardised reporting sheets. After the assessment the European Commission may ask MS for more information, for example to address missing parts in their monitoring programme (2014) or to do more research before the next round of MSFD reporting (2018).

#### Tasks for TSG Noise:

- Progress report for the WG GES (meets end October) – Sandra, René, Mark
- Help in drawing up the Terms of Reference for the consultant - Sandra, René, Mark

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<sup>1</sup> European Topic Centres are consortia of institutions across EEA member countries dealing with a specific environmental topic and contracted by the EEA to perform specific activities as defined in the EEA Strategy and the Annual Management Plan.

### **3. Work plan and priorities**

Sandra explained that, among the tasks in the work programme, the development of monitoring guidance has the highest priority. MS need to have a monitoring programme running in 2014, for most MS this means that the planning has to start early 2013. All other tasks are either ongoing work or will be useful at a later stage of the MSFD process; therefore those will be addressed in 2013 and beyond.

In a short discussion the following points were addressed:

- The monitoring will be set-up as a surveillance system. It is meant to look at what is there, the interpretation will follow at a later stage.
- In addition to this there may be more monitoring in a research context to increase the knowledge of impacts of noise on biota. This is needed for target setting, probably before 2018.
- The two indicators are addressing two impacts of noise that Task Group 11 (TG11) found to be significant: masking and avoidance. This is the starting point for our work.

### **4. Monitoring guidance for impulsive noise**

René Dekeling summarised the conclusions that have been reached during the previous year, (see also chapter 3 of the report of TSG Noise 2012).

- Indicator 11.1.1 addresses considerable displacement
- A quantitative description of GES is not possible at the moment
- Purpose of the indicator is to assess the pressure
- There is a proposal for a noise register

The main item that has not been resolved and that needs to be considered in this meeting are thresholds for inclusion of sounds in the Register. This threshold was not agreed in 2011.

An example for a noise register was provided as Annex 6 in TSG Noise 2012 report. Some items still need to be clarified, including:

- Time and spatial scale
- Level of detail on activities and how much is disclosed (for example national security data)
- Planning

#### *What sources to include*

There is general agreement that seismic survey, pile-driving, sonar and acoustic deterrent devices are noise-sources that should be included in the register.

There is still a question on whether or not explosions should be included. These are impulsive sounds, but usually they are only single pulses and it is not clear whether such a sound will lead to displacement. This decision should best be made by TSG Noise so that all MS do the same.

Another issue is national security data. One member indicated that their navy is reluctant to give access to national security data. The advice of TSG Noise implies that it is preferred that all noise sources are taken up in the register, however, this can only be on a voluntary basis. Mark Tasker noted that these sources are only a very small proportion of the total of relevant impulsive sounds in European Seas.

TSG Noise agrees that ideally all pulses should be in the register. TSG Noise therefore advises that explosions and national security data should be included in the register, on a voluntary basis. Whether or not explosions, and other noise sources, should be regulated under the MSFD should be decided at a later stage.

In addition it was noted that some MS apply some kind of Environmental Impact Assessment (EIA-not necessarily public) for explosives.

#### *What to register*

Mark Tasker introduced this agenda-item. In the report an example of a noise register is given in Annex 6. To set up a noise register that can be used by all MS it is necessary to know what is already available. It would be wise for TSG noise to evaluate more than one attempt to set up a noise register before we provide advice. TSG Noise notes that the problem in MS is that the data are not usually in the same place within MS and they are not necessarily in an easily useable format. In the UK, the only MS to have attempted to set up a register so far, it took months to convert the data into a consistent and useable format.

It is noted that in the UK probably 80 % of the pulse-days are from seismic surveys, most else is pile-driving. If any data from the navy or on explosions are currently not available and are excluded, it will not change the overall picture very much.

Ideally, TSG Noise should have a national contact person from each MS to supply the data. A suggestion is to get names in OSPAR. TSG Noise agreed that René Dekeling and Sandra van der Graaf will try to get names of MS contacts at the OSPAR-Environment Impact of Human Activities Committee (EIHA) meeting next week in The Hague. Mark Tasker will function as a contact point, in case MS have questions.

TSG Noise noticed that there may be a need for more detail in the register than only the pulse-day level, suggested by TG11. For example not only the day, but also the number of noise-producing events, and the source level of each; if this information is available then it could be recorded and may be useful at a later stage. Further information would be helpful in both of the roles of the register: recording what has happened and acting as a potential planning tool for future activities

TSG Noise concluded that a register should, if possible and feasible, contain more information than just pulse-days. It could most usefully contain more information on each pulse-generating activity.

#### *Thresholds*

Michael Ainslie presented a way forward to set thresholds. All members noted the approach set out in this presentation<sup>2</sup> and agreed that further investigations are necessary. This provides a framework for choosing thresholds and explain to people what has been done. TSG Noise noted that the register should stay simple and practical for use by MS. The thresholds discussed are thresholds for taking up sources in the register, it is important to note that these are not thresholds for GES.

In the discussion also the following points were noted:

- TG11 took Southall criteria (for received sound) and took a precautionary approach to ensure that if a marine mammal was at the sound source, it would not be affected. The first TSG report [vd Graaf et al, Feb 2012] confirmed that Indicator 11.1.1 is about source level (or proxy) and not received level.
- MS can always chose to do more than is proposed by TSG Noise
- The threshold should not overlook some sources. Needs to be scientifically and needs to address all important relevant sources.
- We should use best judgement. The number we pick will be wrong, we have to start somewhere. This has been done before.

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<sup>2</sup> Ppt file is available on request

TSG Noise concludes that:

- There should be a low threshold for taking up data in the noise register. The threshold is kept low, not for defining significance, but to leave out sources that are definitely not significant. A small subgroup will work further with the proposal from Michael Ainslie on setting the definitive threshold for this register.
- A distinction would be made between the threshold for the noise register and that for the Indicator 11.1.1. The latter can be higher than that in the register but not lower, because the purpose of the register is to provide data for the Indicator.
- In the register this will be combined with actual information, TSG Noise will decide what extra information to store.
- Registration in (eg 10 dB (equivalent)) bins

## **5. Monitoring guidance for ambient noise**

Mike van der Schaar from Michel André's lab joined this discussion.

Frank Thomsen presented the results from TSG Noise's 2012 report. Some items for the guidance were addressed in this report, some were partly addressed and one was not addressed.

Partly addressed:

- use of sound mapping and modelling
- guidance on baseline
- guidance on analysis

Not addressed: number, location and distribution of measuring locations

Several members gave overviews of projects that they or their MS are involved in (Mary Meacle- Ireland, Michel André – LIDO, Thomas Folegot – modelling sound, Melanie Eickmeier – German project, Jukka – Baltic sea and ice cover)

Leo de Vrees explained that WG GES is preparing a common understanding document for art 9 & 10. WG GES is still working on issues relating to geographical scale, there may be a workshop in September on this issue.

### *Analysis*

The commission decision states that a yearly average should be used. In the report of the TSG Noise this is specified as the arithmetic mean of the squared pressure.

A small subgroup led by Michael Ainslie and Michel André will discuss averaging and will come up with a conclusion within one month.

### *Number, location and distribution of measuring locations*

After a discussion about whether TSG Noise should suggest where measuring locations could be or whether TSG Noise should provide MS with a set of rules, it was concluded that TSG Noise will define a set of common rules for the choice of measuring locations and will set an example by applying the rules to a subregion. TSG Noise cannot define exact locations, since this is the responsibility of the MS. In the first TSG Noise report it was advised that MS within a subregion work together to set up an ambient noise monitoring system.

Frank Thomsen and Michel André will draft a first set of common rules. An initial set was discussed during the meeting:

- rule 1: in a high intensity areas: not in the shipping lane but in a region influenced by one or more shipping lanes, but not so close that it would be influenced by a strategic decision to re-route one or more shipping lanes

- rule 2: when in shelf seas, the hydrophone should be mounted near the seafloor
- rule 3: areas with lower intensity of trawl fishing are preferred (if these exist!)
- rule 4: try to avoid areas where shipping noise is heavily influenced by supply vessels (to oil platforms) and ferry routes
- rule 5: replication, some redundancy is needed
- rule 6: we need to monitor on places that can be considered to be representative for sea areas.
- rule 7: collectively work together within acoustic basins

Further points mentioned:

- acoustic basins may be different from regional seas
- look at systems already in place
- whether or not to use sensitive areas or marine protected areas (MPAs): the main view here is that the indicator is a pressure-indicator, and is about trends. If a trend is detected in an area it could also say something about the trend in nearby areas (for example an MPA).
- Make use of existing underwater communication cables to reduce costs.

The meeting concludes that it would be best to work out a specific case, i.e. monitoring in one specific basin. Options include e.g. English Channel, North Sea, Baltic, or Mediterranean. Michael Ainslie indicated that he has a project where a PhD-candidate will work on sound maps for the North Sea, so this is an opportunity to have capacity available to work out the case for the North Sea.

## 6. Other

### *O1 GES and targets*

Mary described the work of OSPAR ICG-MSFD (ICG-MSFD 12/3/1 page 27). OSPAR has set a qualitative description of GES. Most OSPAR Contracting Parties have said they will use this description in their 2012 reports. A high level qualitative target has been proposed for impulsive noise, this is very close to the UK target.

Sandra explains that the work of TSG Noise on GES and targets will be for a later stage of MSFD implementation. A baseline and more information are needed to set GES related targets.

### *O2 Paper from Karsten Brensing*

TSG Noise concluded that the paper provided by Karsten Brensing is a helpful overview of ongoing projects. However the meeting does not see any point in agreeing or disagreeing with the projects. The group offered to add further relevant projects to the list.

René Dekeling and Mark Tasker will make an initial reaction and check it with Alexander Liebschner and forward to Karsten Brensing.

The way forward for this work package will be discussed at the next meeting. In the meantime all TSG Noise members should share any new information that comes available on the sharepoint site. René Dekeling noted that there are already websites that already act to share information, an interesting, relatively new, site is: [www.aquaticacousticarchive.com](http://www.aquaticacousticarchive.com), initiated and sponsored by the Scientific Committee on Oceanic Research.

### *O3 Additional indicators*

This work was postponed to the next meeting. The group that signed up to work on this work package should draft a proposal ahead of the next meeting.

The overall feeling is that there may be work to be done, however, this has a lower priority. Some work is also being done by others. TSG Noise members will share any background material that comes to their attention on the sharepoint site.

Leo de Vrees pointed out that Germany has prepared (for the OSPAR Environmental Impact of Human Activities Committee - EIHA) guidance on Best Available Techniques (BAT) and Best Environmental Practise (BEP) for cable laying and operation. This may be useful when addressing electromagnetics. EIHA agreed to recommend the guidance for adoption and publication by OSPAR 2012. Once published, the document will be made available on the website.

#### *O4 Mapping*

This work packages overlaps with M2 on ambient noise. Work on this item was postponed to the next meeting. The group that signed up to work on this work package should draft a proposal ahead of the next meeting. It should aim not to overlap with work that is done under M2.

#### *O5 Mitigation*

TSG Noise noted that work on mitigation is also ongoing in OSPAR. A document on mitigation has been discussed at the OSPAR EIHA meeting. An OSPAR drafting group will take forward work during 2012/13, placing an emphasis on establishing a detailed inventory of mitigation techniques and then developing selected mitigation strategies.

Leo de Vrees explained again that the priority of TSG Noise is monitoring. A next step in the MSFD is setting up measures (2015). The Terms of Reference for the group are for 2012/2013 and beyond. This work item can be postponed.

Other members of the TSG Noise expressed the feeling that the TSG Noise does not have the right expertise for this work item. TSG Noise is an expert group. This work would require on the one hand more expertise on engineering (for example of ships and air guns) and the cost of implementing suggested measures and on the other hand more policy-related expertise. The group could in the future, however, indicate what noise sources should be lowered to reach GES. The technical details on how this is done should be left to engineers.

TSG Noise decided to let OSPAR know that TSG Noise will not work on this item in 2012; this will be communicated by René Dekeling and Sandra van der Graaf at the OSPAR EIHA meeting in Den Haag. TSG Noise will follow developments in OSPAR.

### **7. Cooperation with other groups**

TSG Noise discussed several processes that are currently ongoing:

#### *International Organization for Standardization (ISO) TC43 and TC8:*

ISO develops and publishes international standards. Within ISO there is a technical committee (TC43) that is responsible for the standards in the field of acoustics. Since 2011 there is a new sub-committee (SC3) dedicated to underwater sounds. A Publicly Available Specification (PAS) on measurement of underwater sound from ships. has been published by this sub-committee (WG1 of SC3), which is now working on a Draft International Standard (DIS) that on completion is intended to replace the PAS. It is also important that a standard will come into force on general terminology for underwater sound. The TNO-report of 2011 (Ainslie, 2011) has widely been distributed in European countries and was recommended by TSG Noise. It would be practicable for MSs if a new ISO standard on acoustic terminology was to be based on this report, which is the result of cooperation in 7 EU countries and the US.

There is a separate technical committee for maritime technology (TC8). A separate Draft International Standard (DIS) for measuring radiated sound from ships is in preparation by TC8.

#### *Shipping Noise*

SILENV: This is a European project on shipping noise, conclusion out in September – short report during next meeting. At a later stage Aquo and Sonic projects on shipping noise will start.

#### *CEDA or WODA working group:*

CEDA (Central Dredging Association) represents a variety of dredging companies. CEDA published position paper last year. This report contains an advice on best management with regard to Environmental Impact Assessment (EIA).

#### *Further messages for OSPAR EIHA (beyond that listed above):*

- ask for data or contact names for the impulsive noise register

#### *The International Quiet Ocean Experiment (IQOE)*

This is an initiative that started in the United States (2010); a second meeting was held at UNESCO in Paris in 2011. A science plan addressing the impact of underwater sound at the global scale was drawn up. There is some concern that this initiative is too US oriented; René Dekeling explained that a number of people have contributed to this science plan. He has proposed that IQOE would explicitly support the goal of achieving GES under MSFD.

René Dekeling will send the report of TSG Noise report to the IQOE-group, including the TNO report of 2011 (Ainslie, 2011)

#### *NOAA:*

In US two working groups have been established, one on underwater sound mapping, the other on cetacean mapping. These groups will convene in Washington on 23 and 24 May. Michael Ainslie will get in touch with the sound mapping group to initiate information exchange.

#### *There is a NATO working group on marine mammal protection:*

Implication of MSFD should be discussed in that group, René is member of this group and already proposed this to the chair of this group.

### **8. Disseminate results of the group**

Michel André noted that countries that are not involved in TSG Noise in general have difficulty accessing the results of TSG Noise. He indicated that Southern countries were thinking of organising a workshop.

The group indicated that this should preferably be organised top-down by the EC. A workshop could be organised later this year or early next year to inform Southern and Eastern countries.

TSG Noise will offer (to Marine Directors in June) to help organise a workshop to inform MS on the work of TSG Noise to help in disseminating the results.

### **9. Planning**

In the meeting the work packages were split into sub-work packages. For each package a lead, a group and a deadline were defined (Annex 1). TSG Noise members who were not present at the meeting can put their names up for the work packages.

The next meeting of TSG Noise will be on 3 and 4 October 2012 (travel 2<sup>nd</sup> October) in Ireland (most likely Dublin).

Communication for the TSG Noise should preferably go via the sharepoint site that was set up for this purpose. Sandra van der Graaf will update this site and organise it into work packages, all members are requested to use the site and put any documents or output on the site.

René Dekeling and Sandra van der Graaf will make a text for the Marine Directors (early May):

- Ask support for setting up a register
- Proposal for a workshop