

REPORT

Meeting: **DEMASK project kick-off**

Parties: **stakeholders**

Date: **3 April 2024**

Location: **Zandvoort, NL and online**

Chair: **Niels Kinneging**

Rapporteur: **NSAC Secretariat**

1 Welcome and opening

Niels Kinneging (Rijkswaterstaat), project manager of DEMASK, opened the official kick-off meeting of the DEMASK project, welcoming participants in Zandvoort (NL) and giving the floor to Jeannette Plokker from the Rijkswaterstaat for her opening address.

Plokker stressed that currently underwater noise is a crucial topic at the centre of the European marine water policy deliberations.

Despite its calm appearance, the North Sea (NS) is brimming with activity both above and below its surface. Beneath the waves, marine life thrives, while human activities dominate the sea's surface. Recognizing this, Rijkswaterstaat is deeply invested in researching the ecological effects of human activities such as wind energy infrastructures and shipping on the marine environment through initiatives like DEMASK. Rijkswaterstaat's participation in DEMASK presents broad responsibilities, which include integral water management, nature conservation, marine spatial planning, licensing, ship traffic management, infrastructure maintenance and monitoring the state of the environment. Recognizing the importance of stakeholder engagement, Rijkswaterstaat advocates for active involvement of all concerned parties. Moreover, international cooperation is considered necessary for the success of the project.

2 The song of the sea: using marine sounds to study animal behaviour

Annabelle Kok (Groningen University) took the floor to give a keynote address, presenting her ongoing research using marine sounds to study animal behaviour.

Though human-made sounds such as wind turbines, pile driving, and ships fill the ocean, they are not the only sounds present there. Marine life has its own soundtrack, with various species producing a multitude of natural sounds. Various fish showcase melodic vocalizations that vary between day and night, forming choruses that dominate the underwater soundscape.

Given the sensitivity of marine life to sound, human-generated noise can greatly impact animal behaviour. Above water, continuing noise pollution has been observed to disrupt entire communities of species. While this phenomenon likely occurs underwater as well, the challenges of accessing and studying the marine environment make it difficult to investigate. In light of this, sound emerges as a valuable tool for monitoring ecological change. This is

exemplified by a decade long study tracking the distribution changes of two species of Pacific white-sided dolphins. Using hydrophones to detect their distinct vocalizations, researchers monitored shifts in distribution patterns over 10 years, correlating these changes with climate indices measuring average water temperature. Research showed that distribution of the two species has change overtime in connection changing temperature.

Similarly, in the Wadden Sea, sound was used as a proxy for biodiversity monitoring. By identifying and categorizing fish sounds collected with hydrophones, researchers gained insights into the diversity of species present and their temporal variations. This approach, complemented by verification through fishing events, provided a non-invasive means of assessing ecological status. In total, 6068 biological sounds have been captured, grouped in 24 categories: 21 produced by fish and 2 by seals.

In conclusion, by combining sound-based monitoring with other techniques, such as environmental DNA analysis and traditional sampling methods, researchers can obtain a comprehensive understanding of marine ecosystems, allowing effective conservation and management strategies.

[3 Overview of the DEMASK project](#)

Kinneging gave a brief overview of the DEMASK project. Initiated in January 2024, the project will span over three years.

In order to manage all human activities taking place in the NS a number of marine and maritime policies are employed, including national marine management strategies, the Marine Strategy Framework Directive (MSFD), the OSPAR Regional Sea Convention, the Marine Spatial Planning Directive, and regulations from the International Maritime Organization (IMO), particularly for shipping.

Under the MSFD, the Technical Group on Noise plays a crucial role, recently proposing threshold values and currently focusing on updating monitoring guidance, providing numerical modelling guidance, and establishing targets and measures. OSPAR also collaborates effectively on underwater noise issues, with the Intercessional Correspondence Group (ICG) on Noise developing a regional action plan and enhancing noise monitoring and data management efforts, alongside creating a catalogue of mitigating measure. Furthermore, the IMO has published revised guidelines for reducing Underwater Radiated Noise from shipping, acknowledging its adverse effects on marine life.

DEMASK follows the JOMOPANS project, that focused on ambient noise monitoring in the North Sea. Through extensive mapping effort, JOMOPANS determined that the high ship density in the southern NS contributes to elevated noise levels, with some areas experiencing levels exceeding natural noise by 20-25 decibels, raising concerns.

The aim of **DEMASK** is to **manage the underwater soundscape of the North Sea, strengthening the marine ecosystem by defining policy scenarios and quantifying their effectiveness in mitigating noise pollution and impacts on marine life**. The project is structured into three work packages (WP), which will also collaborate closely. In addition to the WPs, a Stakeholder Advisory Board (SAB) will convene to discuss project results.

Regional round table meetings will ensure that balanced representation and regional perspectives are considered.

4 WP1: Policy making and governance for noise mitigation

BSH representatives took the floor to present an overview of WP1 activities, which are divided in 3 phases.

Phase 1 will focus on policy scenario development, through stakeholder engagement and knowledge integration. In the first year, the emphasis is on involving stakeholders and conducting **Focus Group sessions to gather essential information for defining realistic future scenarios**. The project's stakeholders are being identified, and meetings are being scheduled.

In Phase 2, the outcomes from Phase 1 inform the development of advice for stakeholders. This involves utilizing the results of the other two WP2. Through this phase there will be ongoing communication with stakeholders, providing updates, and ensuring alignment with project goals. Feedback will be also gathered from stakeholders, especially from those directly impacted by the advice.

Phase 3 revolves around stimulating knowledge integration and dissemination, as well as facilitating knowledge transfer.

5 WP2: Soundscape predictions for policy scenarios

Christ De Jong from TNO presented an overview of WP2.

The main objective of WP2 is to predict future soundscapes for policy scenarios aimed at managing the North Sea's sound environment effectively and evaluating the extent to which these scenarios mitigate noise pollution. Additionally, communication objectives aim to disseminate findings and demonstrate their significance beyond the project's scope.

Activities of the WP2 will include:

- Developing predictive capability: generating input data for soundscape models based on policy scenarios.
- Identifying and quantifying relevant sound sources: analysing existing underwater sound data to account for sources not considered in previous models, assessing models and input parameters for modelling the identified sources.
- Extending soundscape models: expanding models used in JOMOPANS to include additional sound sources and environmental conditions, followed by a model validation.
- Measuring underwater sound and source characteristics: continuously monitoring underwater sound and obtaining source characteristics for relevant human sources.
- Calculating soundscapes: using improved models to calculate soundscapes for alternative scenarios defined in WP1.
- Harmonizing with other projects: collaborating with research projects like H2020 SATURN to enhance understanding of underwater noise.

- Demonstrating prediction models: showcasing results at international conferences to raise awareness.
- Raising awareness of underwater noise levels.

WP2's scope will focus on the NS. Sound maps will cover the JOMOPANS area and recreational boats in the shallow coastal area of Sweden, including offshore wind farms but not the shallow Wadden Sea.

While not currently a focal point, fishing fleets may be addressed based on guidance from WP1. Incorporating fishing vessels poses challenges due to incomplete AIS coverage and the engine power usage not captured through AIS data.

6 WP3: Biodiversity risk assessment for policy scenarios

Joseph Schnitzler (TiHo) took the floor to introduce WP3, which aims to produce risk maps for policy scenarios and evaluate the influence of mitigation strategies in reducing risks to marine biodiversity in the North Sea.

To achieve the aim, 7 tasks have been formulated:

- Developing a sensitivity scoring system: this involves mapping natural and anthropogenic noises. Species in the North Sea will be scored based on their sensitivity to these noises, considering their communication and hearing abilities. Existing data on the effects of underwater noise will also be reviewed to identify vulnerable species.
- Identifying the most sensitive species and selecting indicator species through expert workshops.
- Evaluating the distribution and habitats of indicator species.
- Identifying biologically significant adverse effects and assessing the percentage of habitat exposed beyond certain noise limits, which may affect marine animal behaviour, communication, and reproduction.
- Harmonizing efforts with other projects and bodies.
- Raising awareness about the risks to marine biodiversity.

Highlight was put on the fact that the project will focus on utilizing existing data rather than generating new one.

7 Introduction stakeholder involvement and Stakeholder Advisory Board

Stakeholder involvement in DEMASK encompasses various groups and engagement approaches. The SAB (which will be meeting online twice a year) aims for sectoral representation and consultation. Other stakeholders will also be involved to collaborate as well as to aid in dissemination of the project. Organizations with strong connections to their respective sectors, such as branch organizations or those with broader involvement, have been invited for participation.

Key stakeholder types include policymakers, the shipping sector, port authorities and organizations, fisheries, the energy sector, scientists, and NGOs. Recreational vessels will also be involved.

8 Communication strategy

Frank Reef (Stichting De Noordzee) introduced the communication plan of the project.

Key communication messages of DEMASK include highlighting the increase in human activities leading to rising underwater noise, the significant effects of noise pollution on marine animals' behaviour, and the necessity of effective policy measures, emphasizing collaboration.

To convey key messages, communication efforts will utilize various channels such as the project website, scientific publications, LinkedIn, offline round tables, newsletter, and other social media. The communication plan and strategy will be circulated to stakeholders to ensure alignment and coherence. Additionally, collaborations with organizations like Dutch Maritime Productions for imagery source will enhance communication effectiveness.

9 Wrap up

Kinneging thanked all participants for joining and taking part in the meeting, extending best wishes to all project partners for a successful three-year project.