JOINT MONITORING PROGRAMME FOR AMBIENT NOISE IN THE NORTH SEA

Interreg North Sea Region Jomopans
European Regional Development Fund
EUROPEAN UNION

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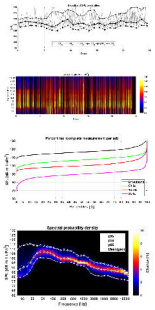
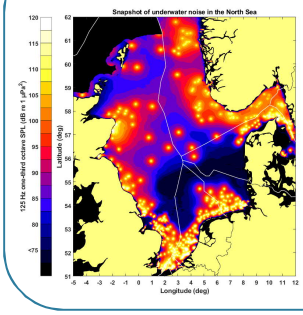
In 2018, the three-year project "Joint Monitoring Programme for Ambient Noise in the North Sea" started. Jomopans will develop a framework for a fully operational joint monitoring programme for ambient noise for the North Sea region. The project will deliver the tools necessary for managers, planners and other stakeholders to incorporate the effects of ambient noise.
International concern increasingly focusses on the potential negative effects of anthropogenic underwater noise on sensitive marine fauna. Questions regarding sound sources, sound transmission, and the distributions of vulnerable species in the North Sea must all be tackled transnationally, as specifically required by the EU Marine Strategy Framework Directive and by the OSPAR Convention.

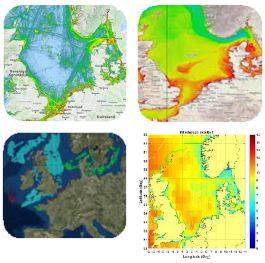
MEASUREMENTS



Coordinated field measurements of underwater noise at 14 locations (see map) will provide data and monthly statistics of the ambient sound levels. These help the development of numerical models through iterative validation and modification. The generated raw data will be processed in a standardized way to make these comparable across the North Sea.

MODELLING

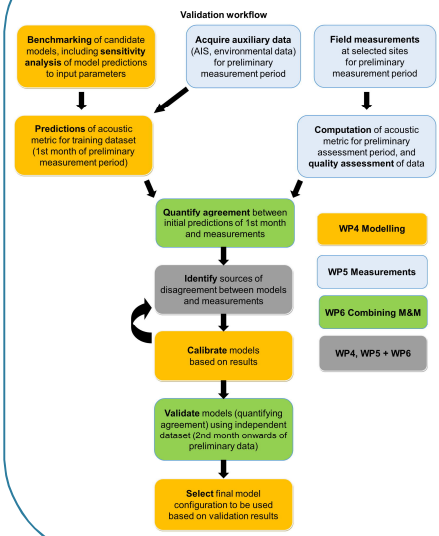




See also: De Jong et al, 2019

Modelling methods for generating maps of ambient noise in the North Sea will be developed. Appropriate models for the most important sound sources (such as ships and wind) and for underwater sound propagation in the North Sea will be implemented. The modelling will provide maps of the acoustic indicators specified by Merchant et al, 2018.

WORKFLOW

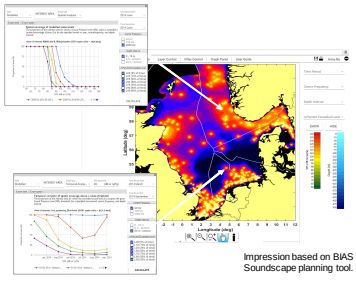


Jomopans has specified the acoustic indicator to be used by the project (see Merchant et al., 2018). Modelling and measurements of this indicator are used to generate validated maps of the indicator (with associated confidence levels) for the North Sea.

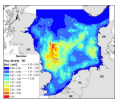
Measurements and predictions with geospatial data are used to assess errors and uncertainties and reported back to the measurement and modelling work packages. After updating the modelling and measurement data maps of confidence levels will be produced.

This division of roles among the work packages enables an independent and spatially explicit analysis of uncertainty in the indicator, which will be valuable to decision makers when interpreting assessments based on the indicator maps.

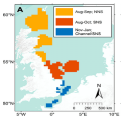
GES TOOL



Impression based on BIAS Soundscape planning tool.



Predicted harbour porpoise densities in the North Sea in summer (Jun.–Aug.) (Gilles et al., 2016)



Selected herring spawning areas in the NNS, SNS, and English Channel/SNS (from map used by UK regulators)

Marine manager who have to address underwater noise face the following questions:

1. Is there a problem?
2. Where is the problem?
3. What is causing the problem?
4. Will measure X solve the problem?
5. Will activity Y create a problem?

Jomopans will help the marine managers with a tool for the evaluation of Good Environmental Status in order to initially address the questions 1 to 3.

In addition biological information about distribution and sensitivity of key (indicator) species will be available in the tool as well.

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CONCLUSION

Following the work flow of Jomopans and with the GES Tool marine managers will be able to quantitatively and graphically assess the risk of impact on the indicator species.

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