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## Sound investigation: effects of noise on marine animals across trophic levels

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### Citation

Hubert, J. (2021, September 9). *Sound investigation: effects of noise on marine animals across trophic levels*. Retrieved from <https://hdl.handle.net/1887/3209242>

Version: Publisher's Version

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**Issue Date:** 2021-09-09

Stellingen behorende bij het proefschrift  
**Sound Investigation**  
**Effects of noise on marine animals across trophic levels**

1. Sound can change activity patterns of Atlantic cod, which may translate to changes in their energy budget and thereby lead to fitness consequences (this thesis, chapter 2 & 3).
2. European seabass increase swimming depth upon sound exposure, but it is not yet clear whether response strength is related to sound characteristics (this thesis, chapter 4).
3. Sound may negatively affect aggregation at a food item in shore crabs, which provides opportunity to common shrimps through competitive release (this thesis, chapter 5).
4. Olfactory-mediated food finding in shore crabs appears not to be affected by sound (this thesis, chapter 6).
5. Blue mussels can habituate to repeated sound exposures, and discriminate between auditory stimuli with distinct spectral patterns (this thesis, chapter 7).
6. Insight into population consequences of non-lethal effects of sound exposure requires long-term studies.
7. Lab and field studies provide different opportunities and limitations, and both require thoughtful interpretation accordingly.
8. Species interactions and community-level effects should be examined to fully understand the implications of noise pollution.
9. Studies on the effects of sound on marine animals may not only provide insight into its effects, but also about how to decrease and, if useful, increase these effects
10. Data based on imperfect design can still provide useful information when the results are interpreted appropriately.
11. One should challenge presumed good ideas as much as presumed bad ideas.

*Jeroen Hubert*  
*Leiden, 9 September 2021*