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Predicting potential impacts on harbour seals from anthropogenic noise: towards an understanding of population consequences of disturbance

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Methods

1 Classification of foraging events in video recordings.

Harbour seals are equipped with CATS camera tags. Potential prey capture events are detected based on the recorded acceleration data. The root-mean-square of the norm jerk will be generated and inspected for peaks exceeding a threshold by Vance et al. 2021. Corresponding video recordings are then visually inspected. An example video can be found through the QR-code.

2 Quantification of validated foraging events

Foraging events in the movement data of a DTAG dataset are identified by validated foraging events from the camera tags.

3 Dose response relationship of noise exposure and behaviour

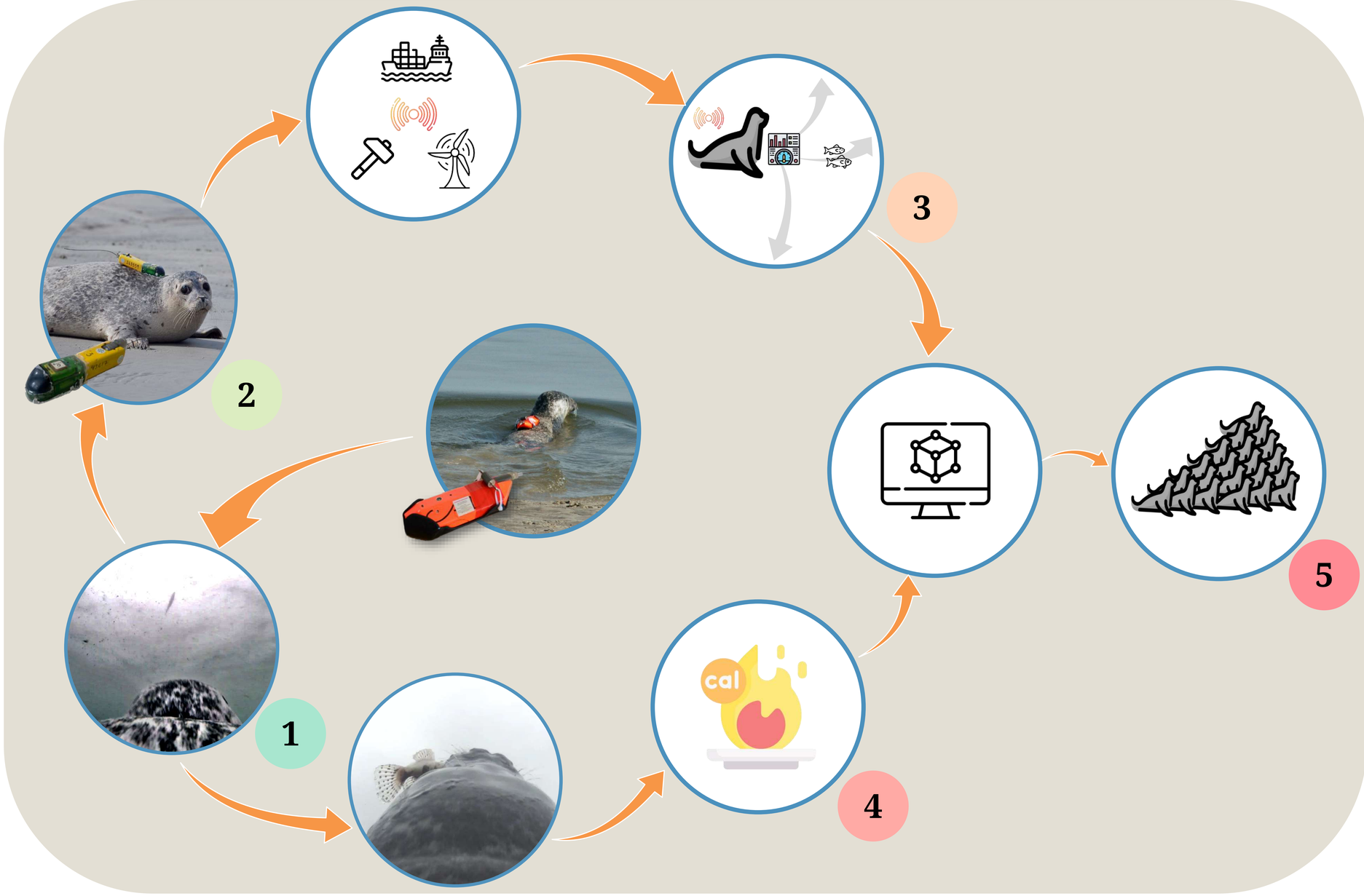
Anthropogenic noise sources associated with offshore windfarms are identified in the underwater noise recordings of the DTAG. Behavioural reactions and missed foraging opportunities will be determined.

4 Energy intake estimates

Prey species are identified by visual inspection. A longspined bullhead (*Taurulus bubalis*) is shown, which was handled by the seal at the surface. Energy content of typical prey items will be determined to estimate daily caloric intake.

5 Population consequences of disturbance

Agent-based modelling will be used to simulate animal movements in response to noise exposure, based on the dose-response relationship. More life history characteristics and consequences of missed foraging events will be incorporated to assess population consequences of disturbance.



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References: Vance et al. (2021). Drivers and constraints on offshore foraging in harbour seals. *Sci. Rep.*, *11*(1), 1-14. Pictograms has been designed using resources from Flaticon.com

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