Rijkswaterstaat
Ministry of Infrastructure and Water Management

Marine mammals and underwater sound

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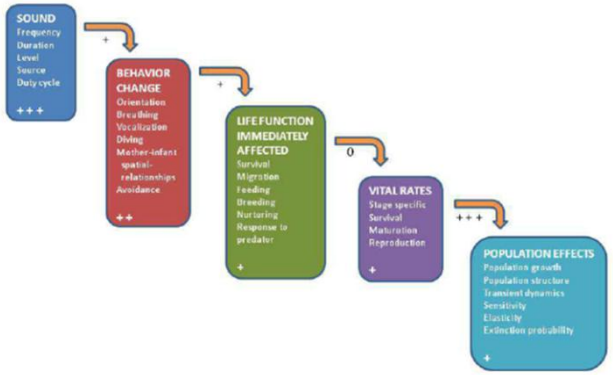
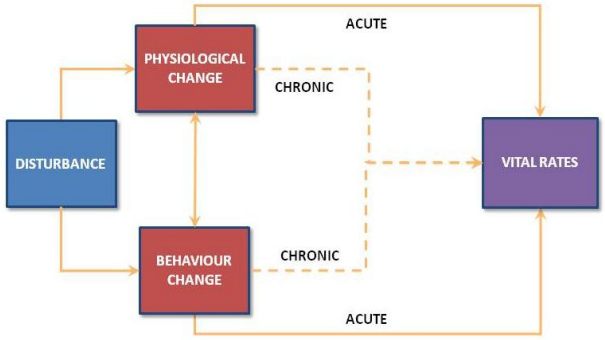
Effects of underwater sound

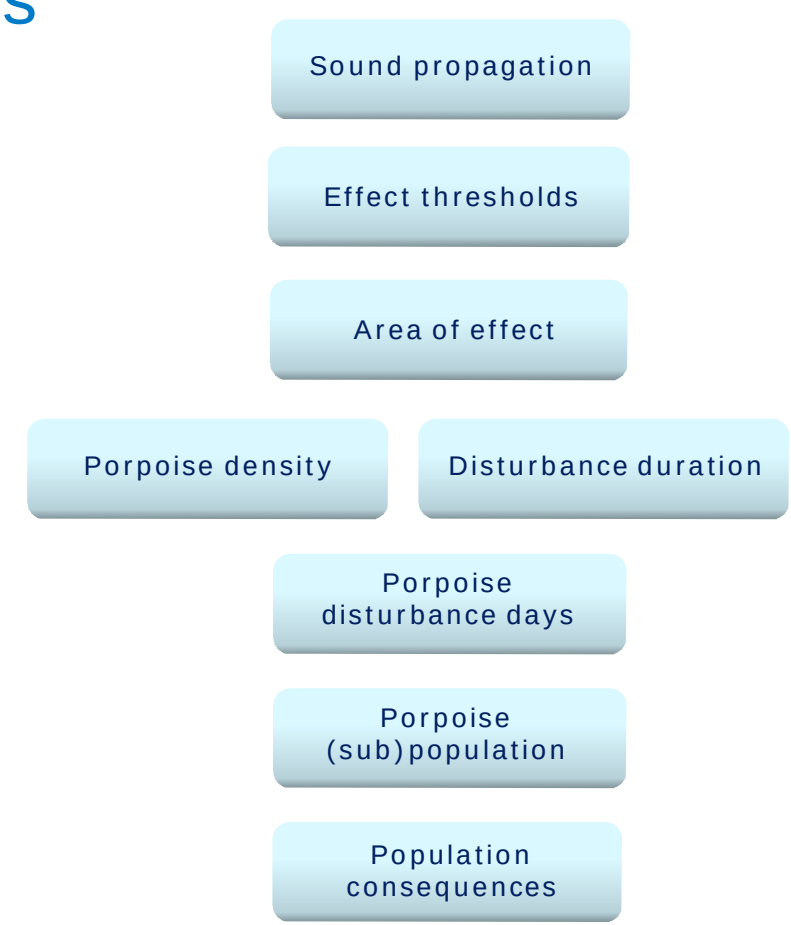
- Anthropogenic sound can interfere with behaviour and ecologically important functions of marine mammals like communication, prey and predator detection, navigation …
- Anthropogenic sound can induce physiological effects like hearing threshold shifts, stress …
- Translation of effects on individuals to populations (PCAD, iPCOD, DEPONS)





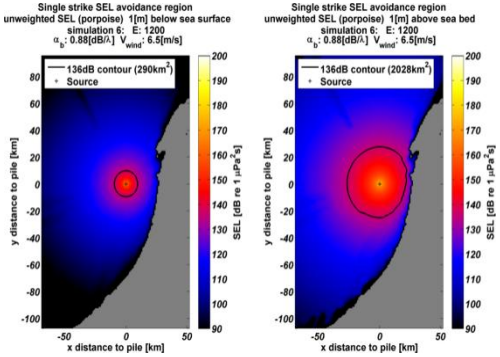
Uncertainties and assumptions

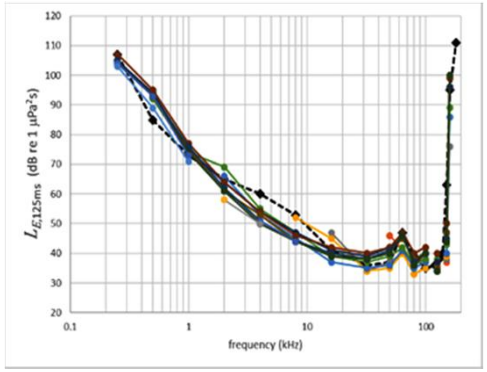
- Predictions of area of effect don't match with observed area of effect.
- Uncertainties in sound propagation modelling
- Effect of disturbance duration on energetics and therefore the condition of the individual is based on expert judgement



Underwater Sound Cluster

- Frequency weighting: an analysis of avaliable data on frequency weighting => how to proceed on weighting and weighted thresholds?
- Validating sound propagation: update of the Aquarius model based on sound measurements of 2 offshore windfarms
- Seal surface hearing





Individual and population

- Harbour porpoise energetics:
  - analysis of husbandry data
  - effect of fasting for 24h in each season
- Analysis of hearing damage and life history in stranded porpoises
- Analysis of contaminants in stranded porpoises