Stranding research

Lonneke IJsseldijk
International porpoise strandings investigation

- What, where, when
- 1990-2017
- UK, BE, NL, DE, DK
- N=16181
Strandings 1990-2017 North Sea

Cumulative Stranding Number

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Ijsseldijk & ten Doeschate et al. 2020
Region A

Region B

Region C

Region D

Region E

Region F

IJsseldijk & ten Doeschate et al. 2020
Future prospect

- First international, multi-decade analysis
- Adding data:
  - Nutritional condition
  - Causes of death
  - Health status
  - Contaminants
  - Etc.
- This info is available in stranding schemes from necropsies → a start has been made in NL
- Data on anthropogenic activities vs. strandings
- Drift and other environmental factors
Necropsies in NL

- Ongoing since 2006
- Monitoring causes of death
- WUR: contaminants & diet
- Tissue bank at UU

- Focus study on anthropogenic CoD in 2021
- Gross- and histopathology, diet and marine debris analysis
- 612 cases
Necropsies in NL

• Bycatch 17%: largest category anthropogenic CoD, mainly young animals

• Infectious diseases largest category (32.5%), mainly adult porpoises

• Other direct anthropogenic CoD
  • trauma from collisions: 2%
  • ingestion and entanglement in marine debris: 0.3%

• Inner ear abnormalities 2/50
Bycaught HP – control cases

- 25 bycatch criteria from literature
- N=12 porpoises retrieved from gillnets (2008-2019)
- Testing which criteria applied
- In majority of certain bycatch cases: ‘superficial incisions’, ‘encircling imprints’ and ‘recent feeding’ observed
- Also frequently observed: ‘pulmonary oedema’, ‘pulmonary emphysema’, and ‘organ congestion’, although considered unspecific
- Notably, ‘favourable health status’, ‘absence of disease’ or ‘good nutritional condition’ did not apply
- Control case numbers are still very low!!
More info?

- [L.L.IJsseldijk@uu.nl](mailto:L.L.IJsseldijk@uu.nl)
- Hard copies available: email me your address
- [https://www.globalacademicpress.com/ebooks/lonneke_ijseldijk](https://www.globalacademicpress.com/ebooks/lonneke_ijseldijk)
Harbour porpoise unusual mortality event
August 2021
UME 2021

- ~200 strandings HP end of August
- Dutch Wadden islands
- All in similar state of decomposition
- Many adults
- 22 collected for post-mortem investigation and ancillary testing
UME 2021

- Government: Drift model and human activity
- Drift model based on humans
- Estimated two weeks prior to stranding
- Origin likely north of Frisian Front
- Dominant northern winds
- No uncommon (human) activities reported
- Explosion in south of NL early August
UME 2021

• Gross pathology:
  • good nutritional conditions
  • reproductively active (pregnant and/or lactating)
  • mild number of parasites
  • no recent feeding
  • subacute cause of death seems most likely

• Diet analysis:
  • 1/2 empty stomach
  • Worn otoliths, very small number
  • Hors mackerel → Frisian Front
  • No marine debris
UME 2021

- Harmful algae blooms:
  - Dominic acids → negative
  - Tetrodotoxin → negative
  - Lipophilic marine toxins → negative
  - Saxitoxin → very low concentration in 1 sample

- Virology:
  - Influenza A → negative
  - SARS-CoV-19 → negative
  - Morbillivirus → negative
  - Herpesvirus → 1 positive case
  - NGS pending

- Microbiology:
  - Liver samples cultured
  - 75%: *Erysipelothrix rhusiopathiae*
  - Bacteria commonly known in pig farms
  - Diamond skin disease: erysipeloid
  - Cetaceans: incidental case reports of fatal *Erysipelothrix* infections → septicemia
  - No reports of UME due to *E. rhusiopathiae*
  - Ongoing investigation: sequencing bacteria, assessing virulence, discussing port d ’entrée, testing prey species, bird strandings?
Thanks to...

The stranding network volunteers and organizations, for reporting and helping to collect stranded animals!!!
Thank you for listening!

Questions?