



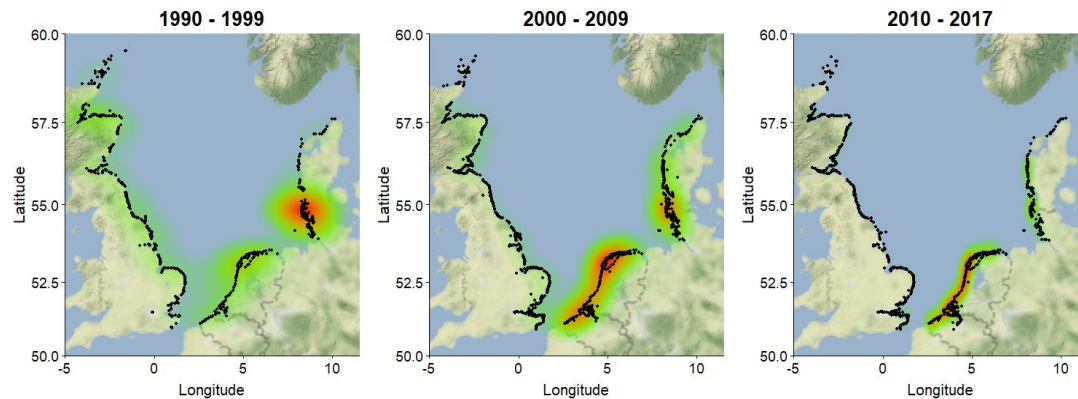
Stranding research

Lonneke IJsseldijk



International porpoise strandings investigation

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



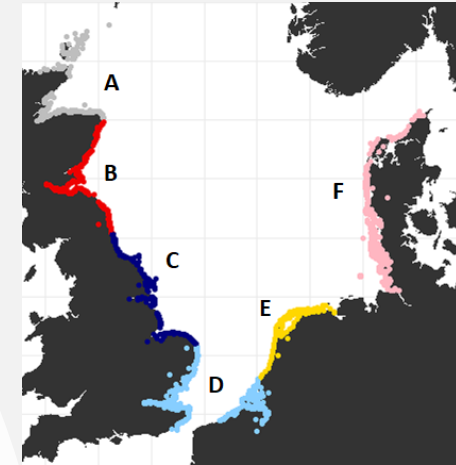
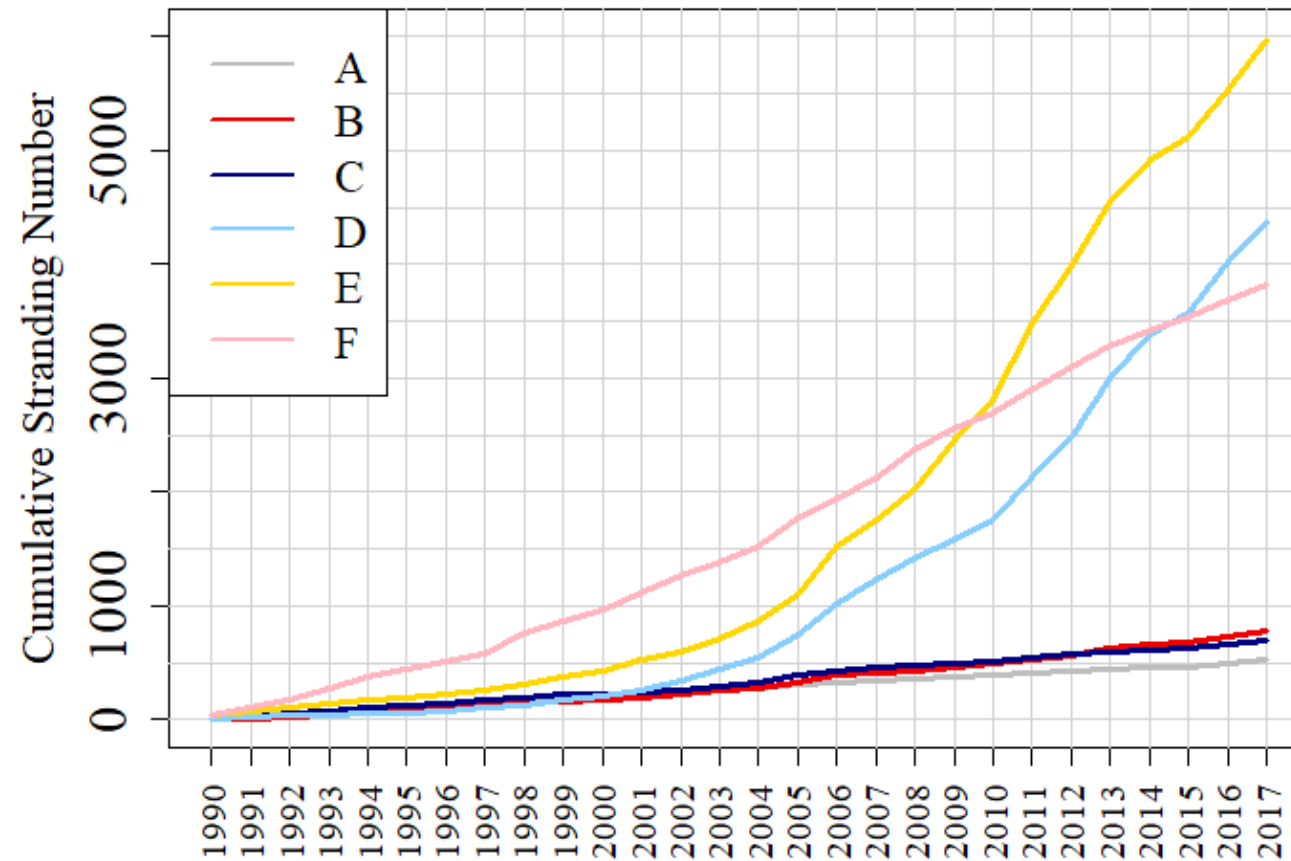
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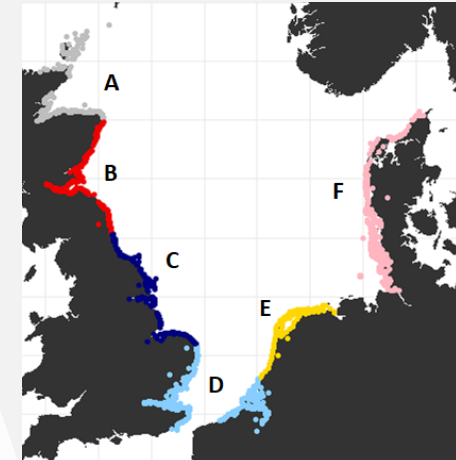
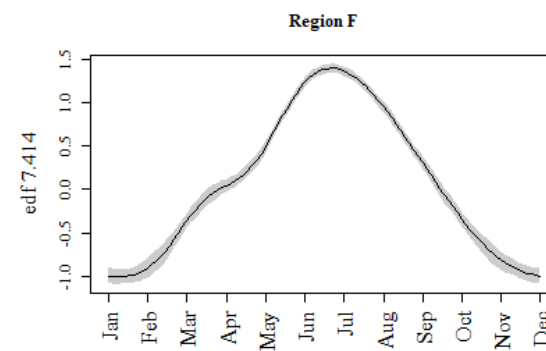
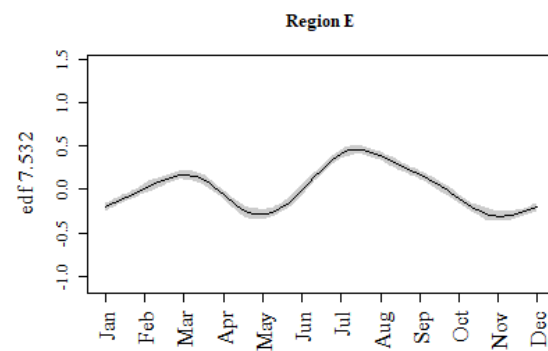
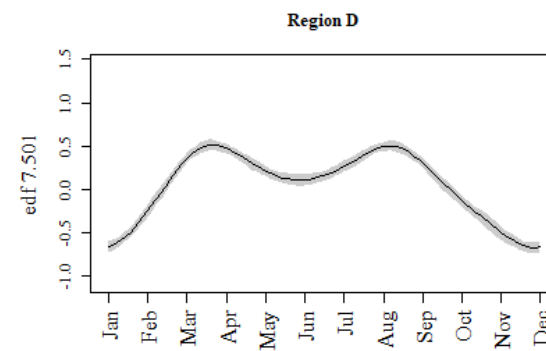
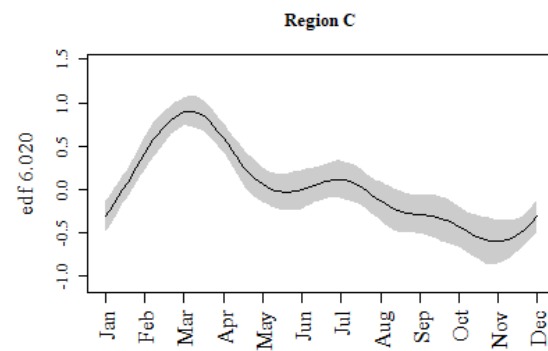
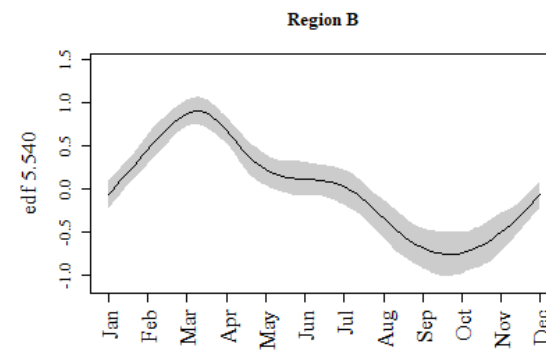
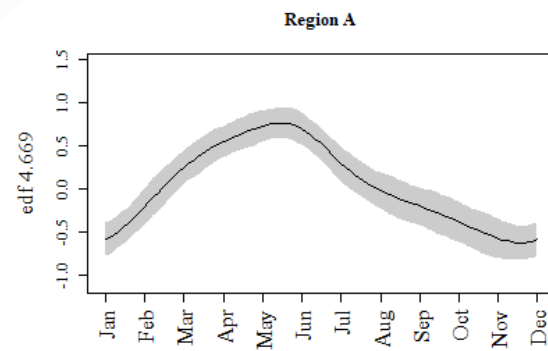
Strandings 1990-2017 North Sea



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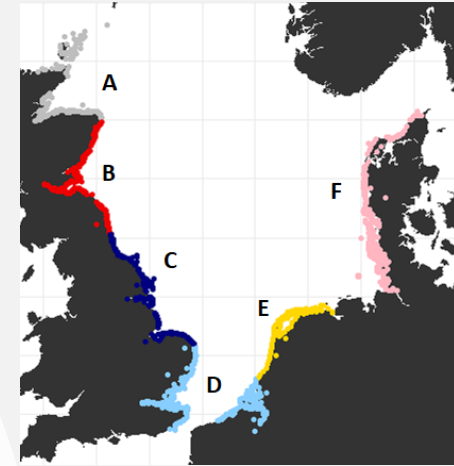
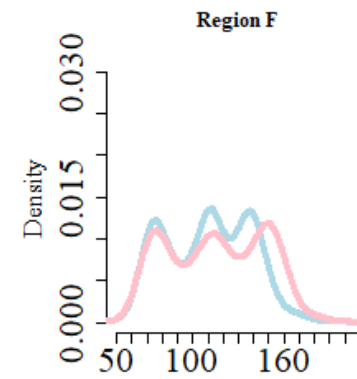
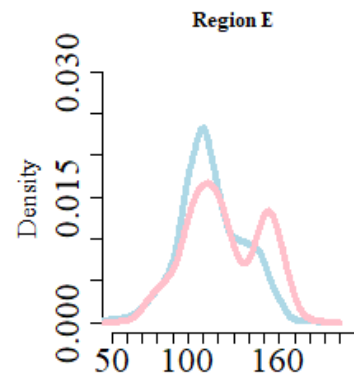
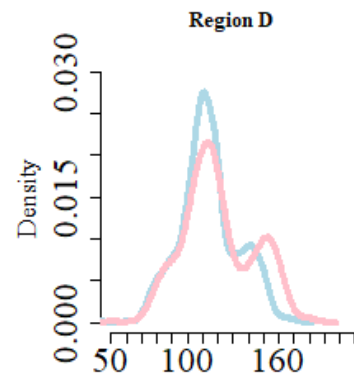
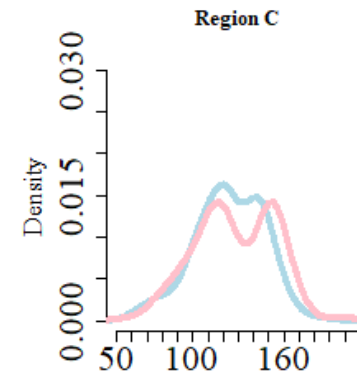
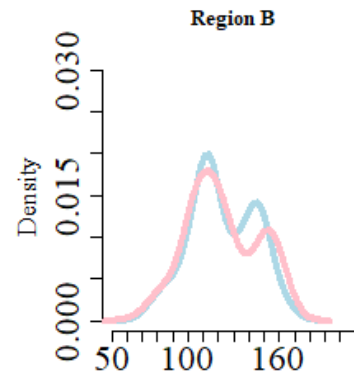
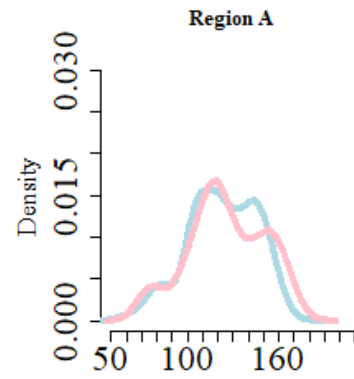
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Future prospect

- 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



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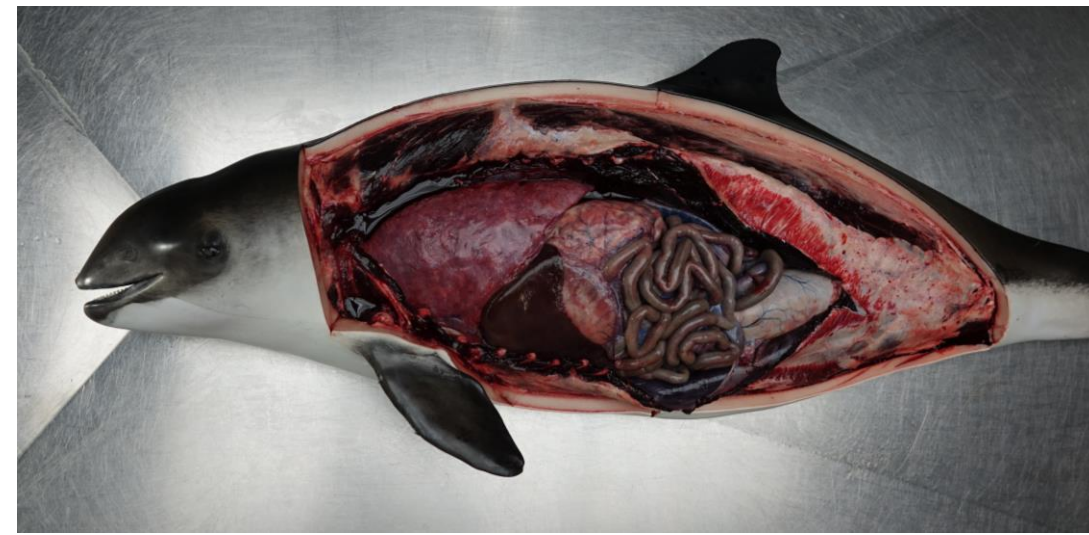
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Necropsies in NL

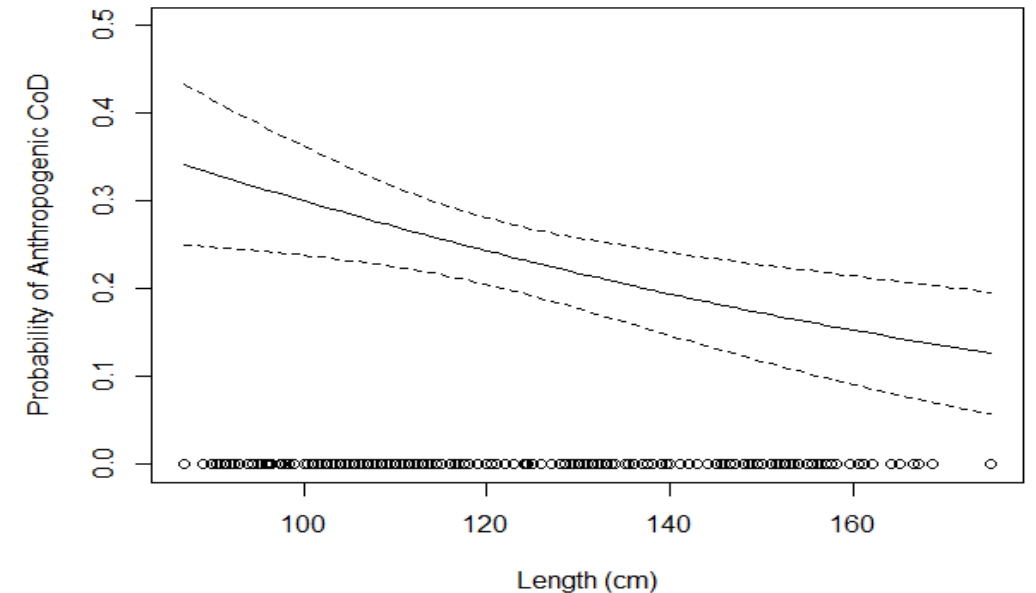
- Ongoing since 2006
- Monitoring causes of death
- WUR: contaminants & diet
- Tissue bank at UU
- Focus study on anthropogenic CoD in 2021
- Gross- and histopathology, diet and marine debris analysis
- 612 cases

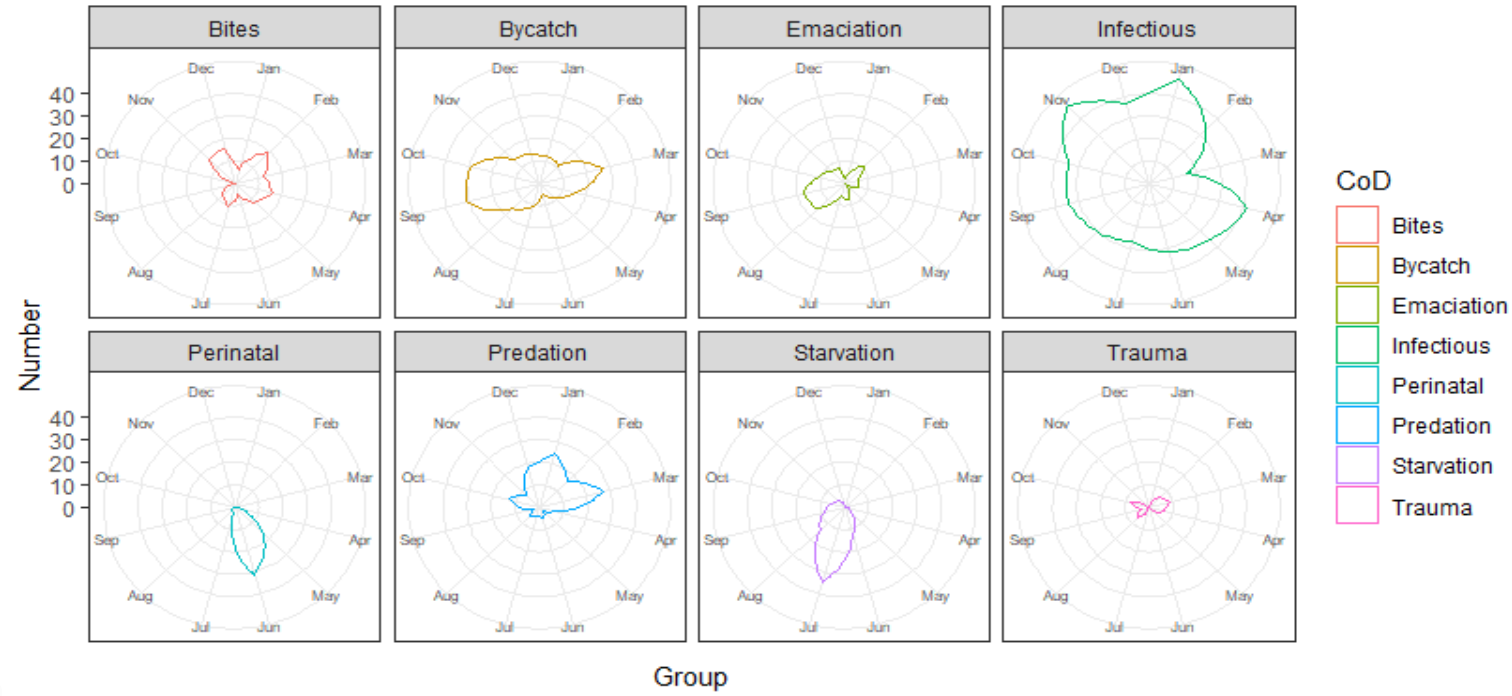


Necropsies in NL



- 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 !!



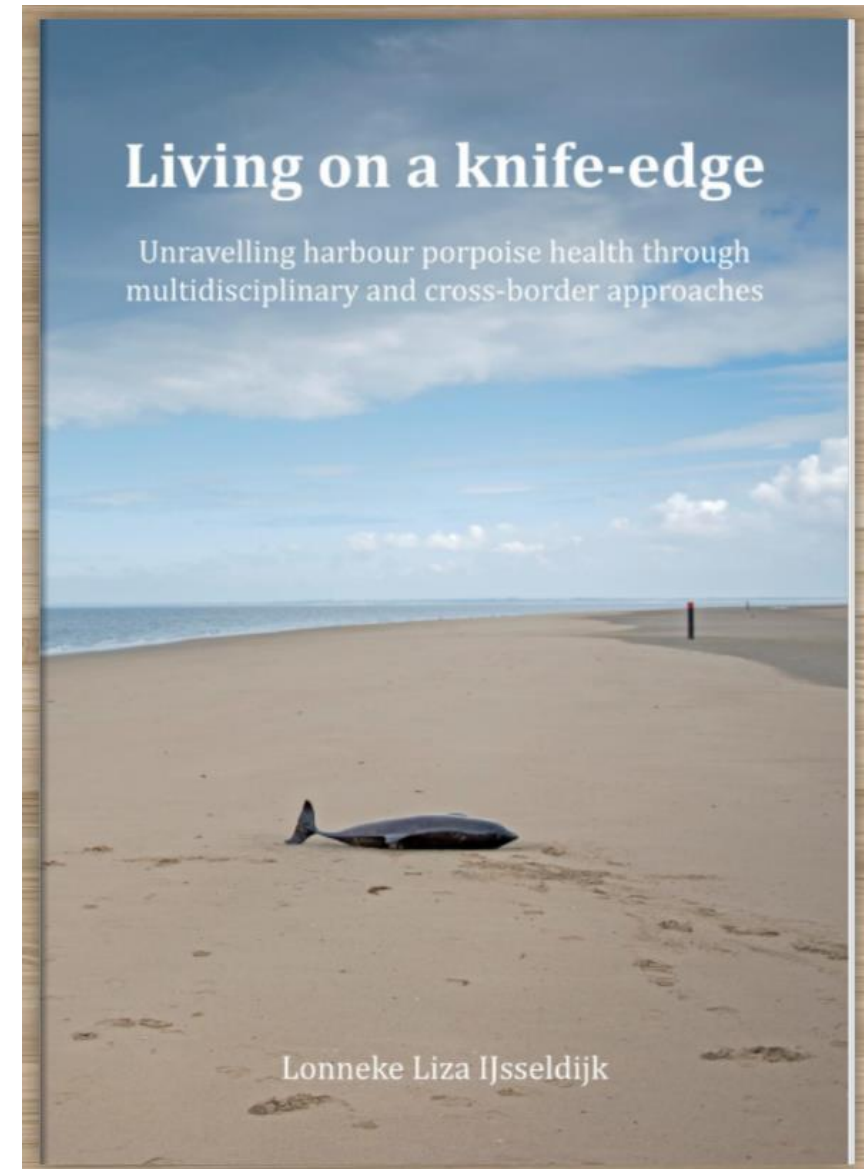
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More info?

- L.L.Ijsseldijk@uu.nl
- Hard copies available: email me your address
- https://www.globalacademicpress.com/ebooks/lonneke_ijsseldijk/



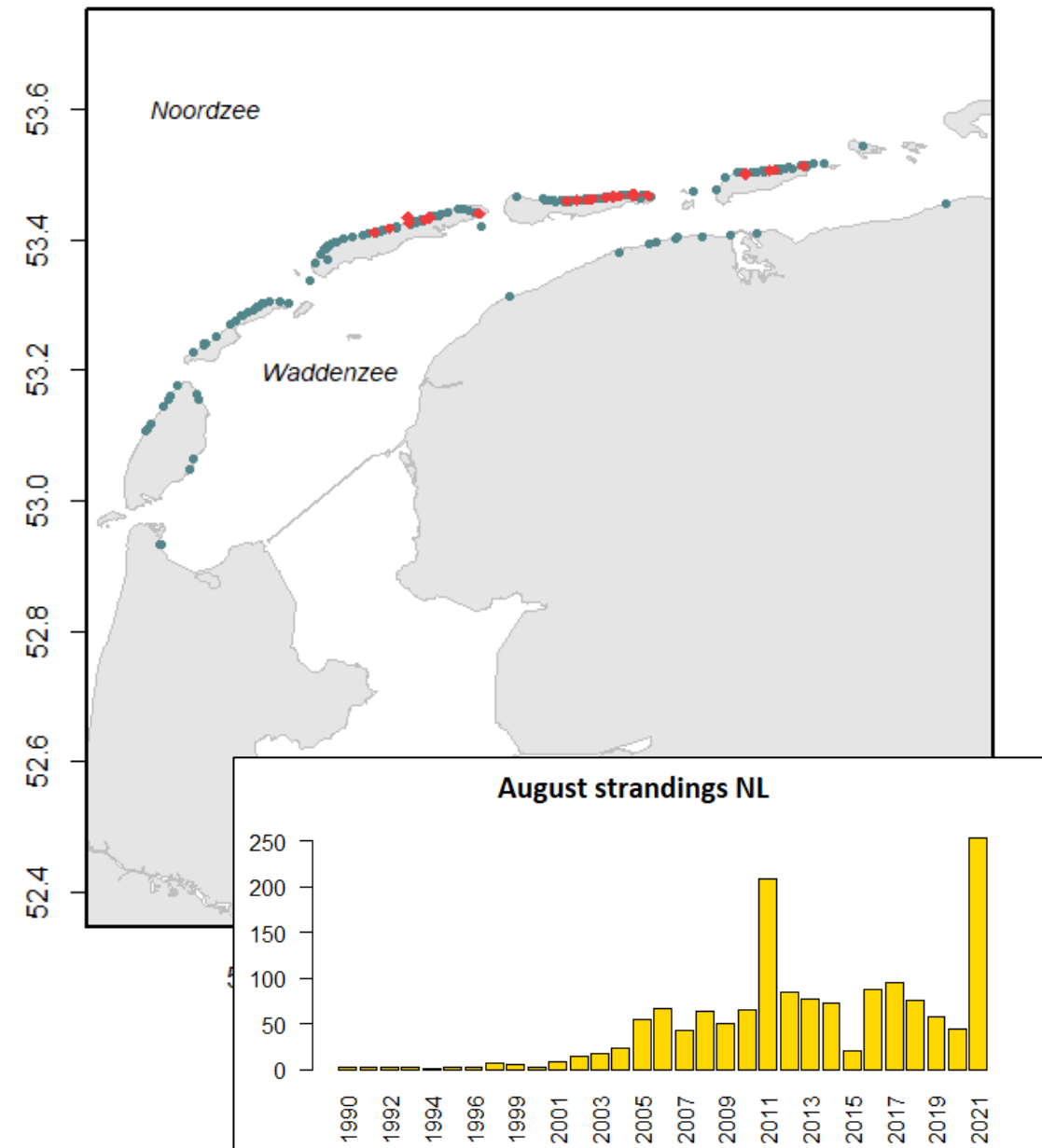
A woman with brown hair tied back, wearing a red protective suit and blue gloves, is measuring a dead harbour porpoise on a metal table. The porpoise is dark grey and has a yellow measuring tape around its midsection. The woman is wearing a white apron with the name 'LONNKE' on it. The background shows a laboratory setting with white tiled walls, metal tables, and large windows. A large circular graphic is overlaid on the right side of the image, containing the title and date.

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



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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!!!



Ministerie van Landbouw,
Natuur en Voedselkwaliteit



Rijkswaterstaat
Ministerie van Verkeer en Waterstaat

Other colleagues and partners



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Thank you for
listening!

Questions?