PORPOISES AT DTU

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DTU AQUA

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In Denmark:
• First trials in 2008
• Bycatch monitoring since 2010
• Focus on SSF GN
• 18 vessels since 2010 (9 currently)
## Generalised linear mixed model (GLMM)

<table>
<thead>
<tr>
<th>Response variable</th>
<th>Description</th>
<th>Fixed effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porpoise bycatch</td>
<td>Number of porpoises captured in nets per fishing day per ICES statistical square</td>
<td></td>
</tr>
<tr>
<td>Mesh size</td>
<td>Stretched diagonal mesh size (in mm) in the conducted fishery, based on fisher declarations or deducted from landings composition. Only one mesh size was reported for each fishing day, based on the weight of the main target species</td>
<td>Discrete (3 levels): &quot;&lt;120 mm&quot;, &quot;120-200&quot;, &quot;&gt;200 mm&quot;</td>
</tr>
<tr>
<td>Vessel length</td>
<td>Total length (in m) of the fishing vessel</td>
<td>Discrete (5 levels): &quot;&lt;8 m&quot;, &quot;8-10 m&quot;, &quot;10-12 m&quot;, &quot;12-15 m&quot;, &quot;&gt;15 m&quot;</td>
</tr>
<tr>
<td>Population</td>
<td>Dummy variable indicating the porpoise (sub)population, based on the fishing location</td>
<td>Discrete (2 levels): &quot;North Sea Population&quot;, &quot;Western Baltic Sea Population&quot;</td>
</tr>
<tr>
<td>Net length</td>
<td>Total (log) length of the net fleets (in m) for each fishing day</td>
<td>Continuous</td>
</tr>
<tr>
<td>Soak time</td>
<td>Mean (log) soak time of the net fleets (in hours) for each fishing day</td>
<td>Continuous</td>
</tr>
<tr>
<td>Depth</td>
<td>Mean (log) depth of the ICES statistical rectangle in which the fishing operation(s) occurred</td>
<td>Continuous</td>
</tr>
<tr>
<td>Quarter</td>
<td>Quarter during which fishing occurred</td>
<td>Discrete (4 levels)</td>
</tr>
<tr>
<td>Year</td>
<td>Year during which fishing occurred</td>
<td>Discrete (11 levels)</td>
</tr>
</tbody>
</table>
BYCATCH ESTIMATES IN DANISH GILLNETS

Danish logbook data are (often) incomplete:
- Number of nets soaked
- Length of net fleets
- Height of the fishing fleets
- Soaking duration
- Mesh size
- Fishing location

Swedish data is better

Expert opinions were made!
TOTAL BYCATCH ESTIMATES

Total bycatch estimates per ICES square

When pingers are used according to the regulation

Ignoring pingers

(Kindt-Larsen et al. 2023)
PINGER TESTS IN THE NORTH SEA

• BANANA (50kHz – 120kHz with harmonics, 145dB +/- 3dB @ 1m)
• 200M standard banana
• 500M standard banana
• 500M red banana
• Control
PEARLS

• Kratzer et al., 202, 2021, 2022
• Tests in the Danish fishery
• CIBBRiNA
• ICELAND- APRIL 2024
MITIBYC (EMFAF, 2024)

• West Baltic: bring DE, DK, SE effort together
• Develop models for pinnipeds and birds
• Assess fisheries characteristics associated with bycatch probability
• Gear modification trials
THANKS...

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