Aerial surveys for megafauna [2021-2022]: Results for Common dolphins

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Aerial surveys for megafauna [Protocol]

- High-wings aircrafts
- Bubble windows
- Standardized methodology along surveys
- Observer training
- Multi-target protocol*: several taxa + human activities

*Lambert et al, 2019
https://doi.org/10.6084/m9.figshare.c.4638350.
Aerial surveys for megafauna [since 2011]

Large to small-scale surveys

SAMM II winter 2021

Aerial megafauna SCANS IV (Summer 2022)
Aerial surveys for megafauna [Long term]

SAMM I
Winter 2011-12
20 500 Km

SAMM I
Summer 2012
23 800 Km

SCANS III
Sum 2016
9 400 Km

SAMM II
Winter 2021
19 100 Km

SCANS-IV
Summer 2022
16 300 Km
Blanchard et al. 2021, and unpublished Pelagis
Small delphininae in winter: 2012 and 2021

- Density reduced in the northern shelf Atlantic, but group spread over all Atlantic strata
- Relatively stable winter abundance in the area:

\[ \text{164 100 small delphininae (IC 95% : 97 400-278 800) in 2012 to 195 600 individuals (138 900 - 277 200) in 2021} \]

From digital analysis (< proportion of Common dolphins among small delphininae)

\[ \text{181 000 common dolphins in winter 2021 (IC 95% : 128 000- 258 000) for the area (131 200 Km²)} \]

Laran et al 2022.SAMM II report
Small delphininae

Global (winter & summer) model

Winter 2011-12

Winter 2021

Single winter 2021 model

Densité prédite (ind/km²): 6, 4, 2

Laran et al. 2022. SAMM II report
Seasonal variation at small-scale

SPEE seasonal surveys for a MPA (2019-22)

Area : 15 000km²
2,500 km/ session
4 sessions /year
2 years
Seasonal densities in the area by CDS (2019-2022)

- Maximum in winter
- Interannual variation
- Simulation of their distribution (← from the 2 first years)
- Simulation of decline (10, 25, 50% tested)
- → Statistical power to detect decline with 6 years of survey

→ Accurate estimation of the decline with 6 years of data

80% for a 50% decline and >50% for a 25% decline
Seasonal densities by CDS (2019-2022)

Small delphininae

Seasonal DSM (2019-2020)

Fixed model with 2021-2022 environmental parameters
Validation with independent data set (2021-22)
Small-scale change in winter

CAPECET (Jan-Mar 2020)
Jan-Mar 2023)

Area : 35 200 km²
1700 km/ session
4 sessions by winter
winter 2020

Small delphininae

Density (individuals. Km⁻²)

Encounter rate (sighting/Km)

Jan-Mar 2023 same monitoring for Delmoges project (DELphinus MOuvements GEStion)
Delayed response to environmental conditions and infra-seasonal dynamics of the short-beaked common dolphin distribution

Lambert et al. Accepted. RSOS
STORMM
Digital acquisition as support of visual observation
Objectives: Improve the species identification and pod size estimates

→ Proportion of common vs striped dolphins in Winter 2021: 96% of common dolphins for shelf/slope strata and 85% for oceanic

→ Better estimates of group size (ex: correlation visual/digital)
Using aerial survey to count cetacean carcass floating at sea

Dead cetaceans at sea during SAMM II Winter 2021
Small cetaceans dead at surface in winter
Small cetaceans dead at surface [2019-22]

Estimated number of floating carcasses (CDS for SPEE block area)

<table>
<thead>
<tr>
<th>Effort (km)</th>
<th>Dead cetacean/Km</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>0.005</td>
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<tr>
<td>46</td>
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<td>31</td>
<td>0.003</td>
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<tr>
<td>112</td>
<td>0.0025</td>
</tr>
</tbody>
</table>

Effort (Km)
2021’s sightings already available on line (for boat and aerial surveys)

https://pelabox.univ-lr.fr/pelagis/PelaObs/

Survey reports available on
https://www.observatoire-pelagis.cnrs.fr/suivis-en-mer/suivis-aerien/
On going project MAMO survey: New seasonal survey at small-scales

October 2022 – August 2024

Area: 9 100km²
1,500 km/session
4 sessions/year
2 years

Suspended for now as we are not allowed to fly in most of the English waters