






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

Matthieu AUTHIER,
Ariane BLANCHARD,
Florence CAURANT,
Ghislain DOREMUS,
Mathieu GENU,
Charlotte LAMBERT
Sophie LARAN,
Thierry SANCHEZ,
Jérôme SPITZ,
Olivier VAN CANNEYT

PELAGIS UAR 3462 - LRUniv - CNRS

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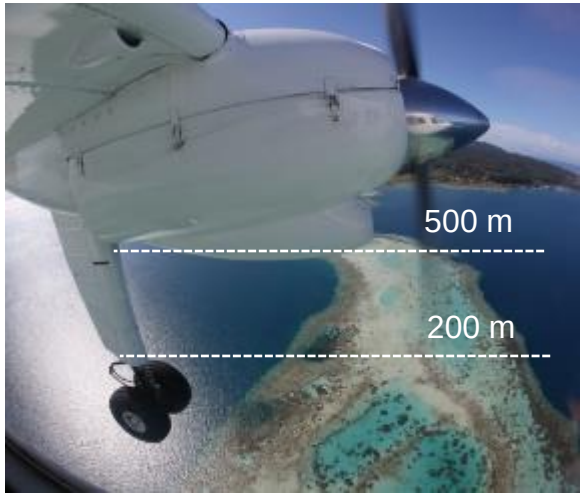
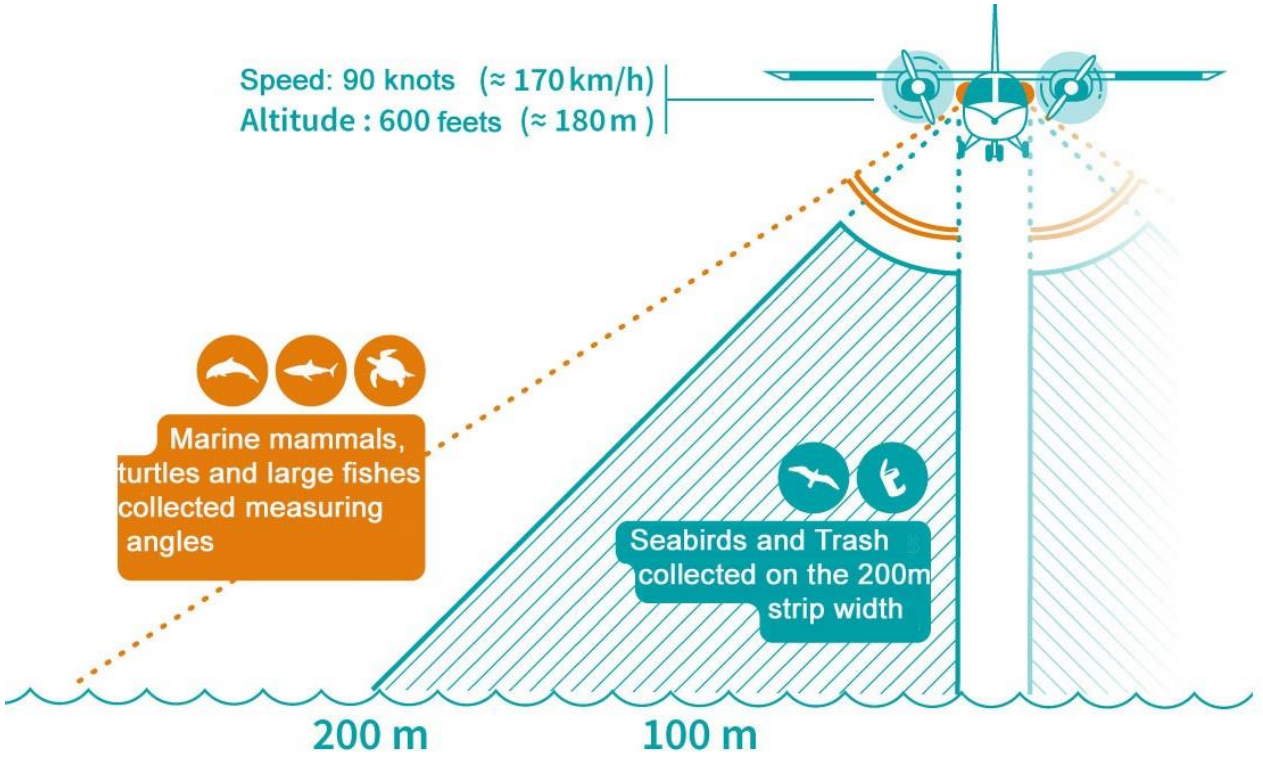
Aerial surveys for megafauna [Protocol]

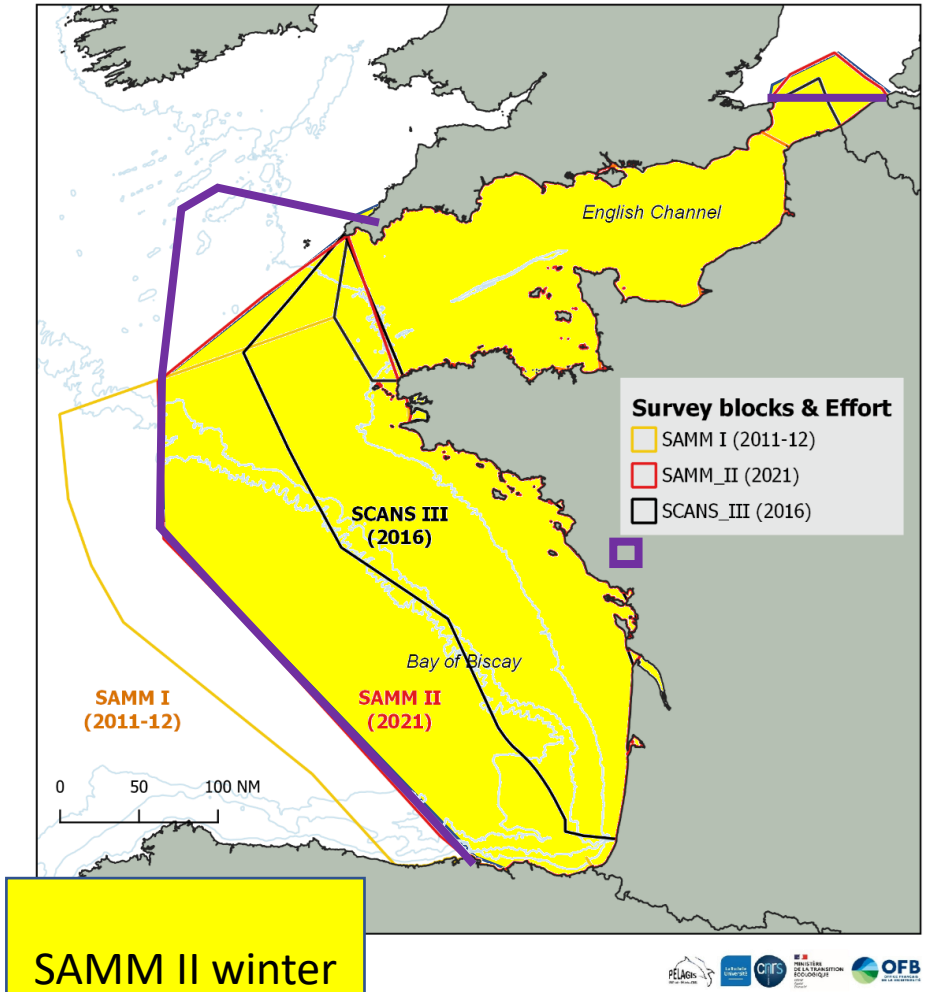


- High-wings aircrafts
- bubble windows
- Standardized methodology along surveys
- Observer training
- Multi-target protocol* :
  several taxa + human activities



*Lambert et al, 2019
https://doi.org/10.6084/m9.figshare.c.4638350.

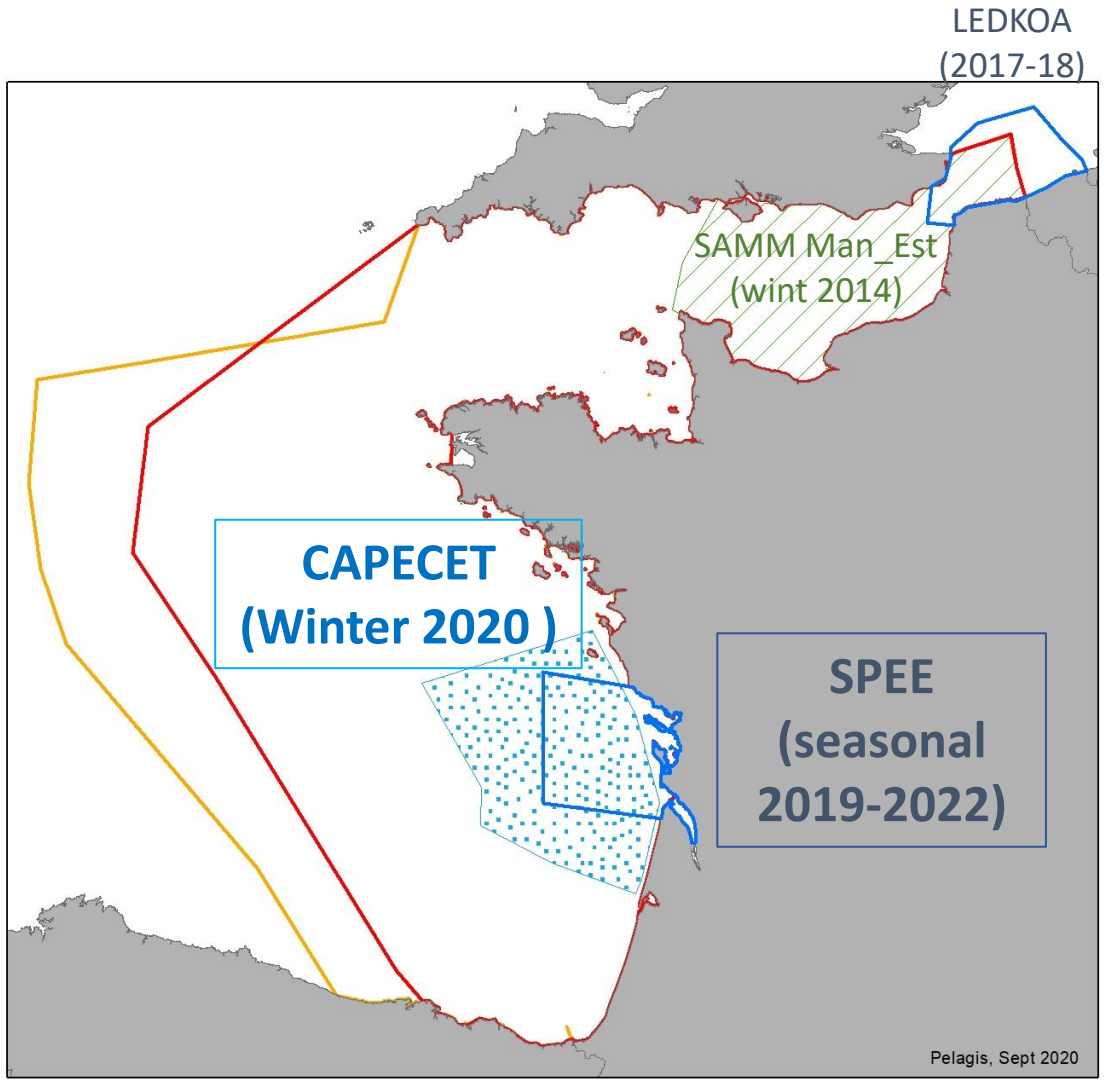
Aerial surveys for megafauna [since 2011]



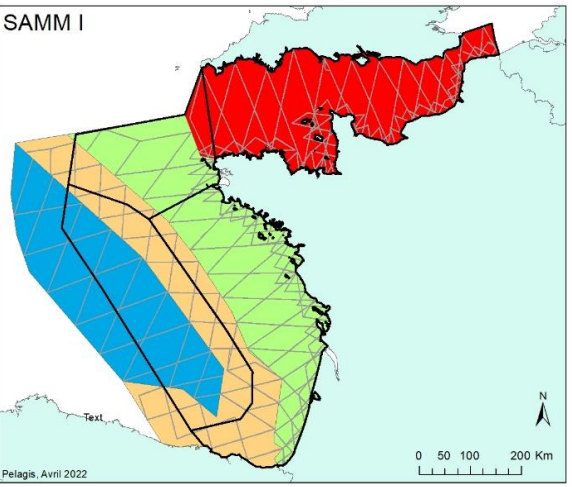
SAMM II winter 2021

Aerial megafauna SCANS IV (Summer 2022)

Large to small-scale surveys

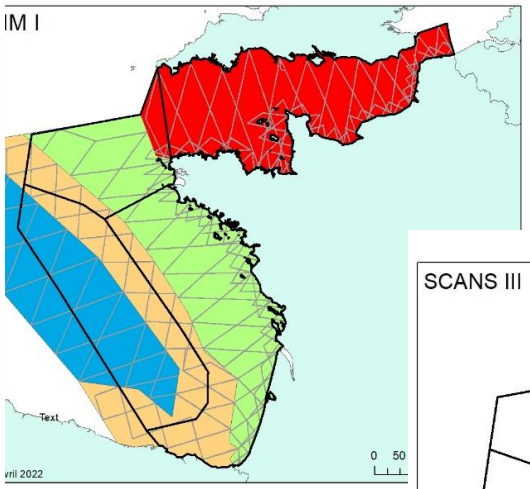


Aerial surveys for megafauna [Long term]



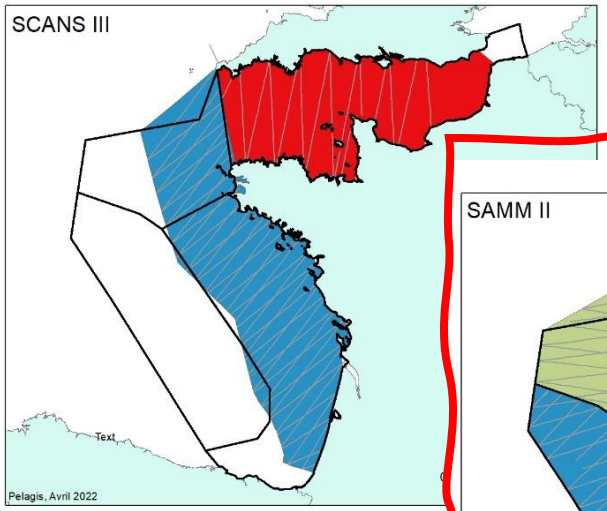
SAMM I
Winter 2011-12

20 500 Km



SAMM I
Summer 2012

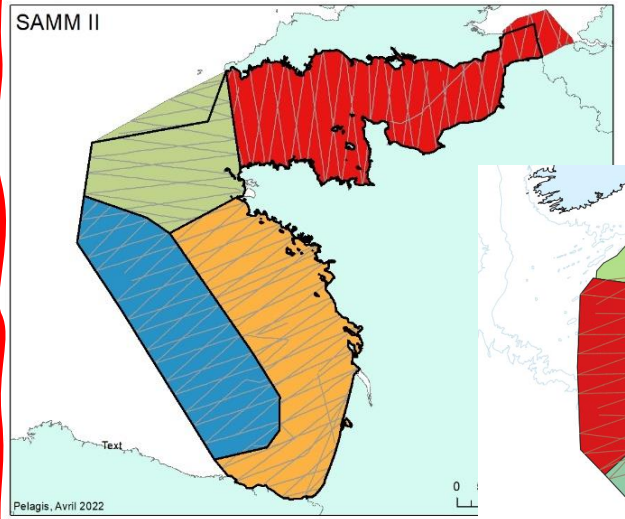
23 800 Km



SCANS-III

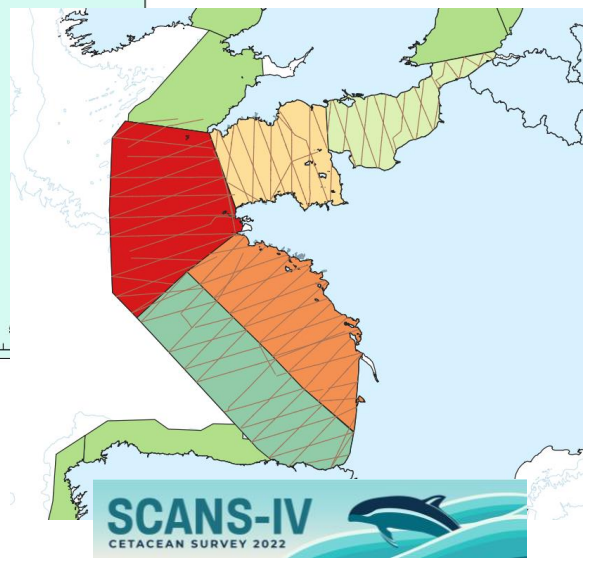
Sum 2016

9 400 Km



SAMM II
Winter 2021

19 100 Km



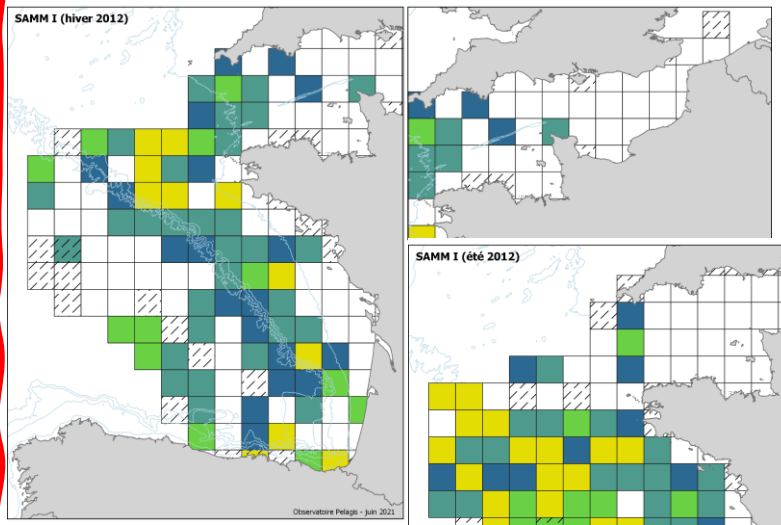
Summer 2022

16 300 Km

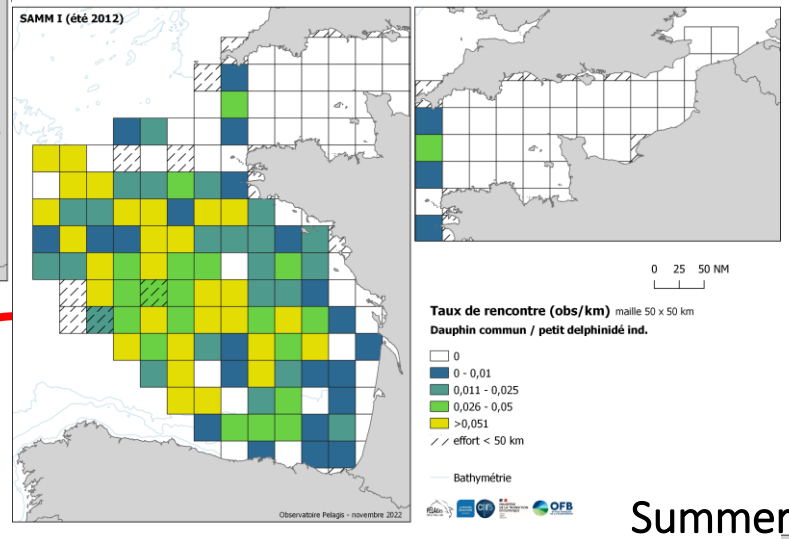
Encounter rate (sighting/km)

Small delphininae

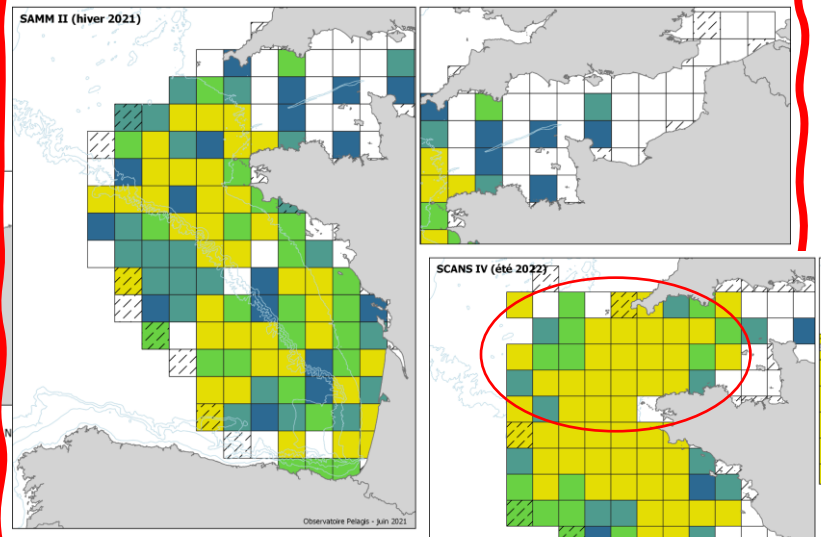
Winter 2012



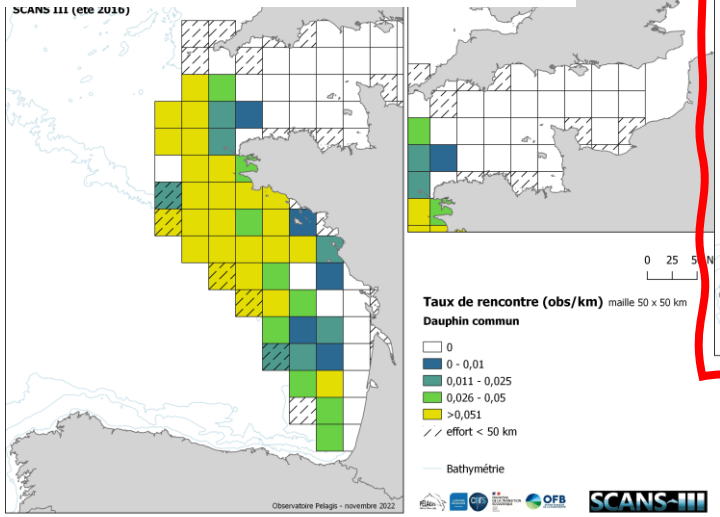
Summer 2012



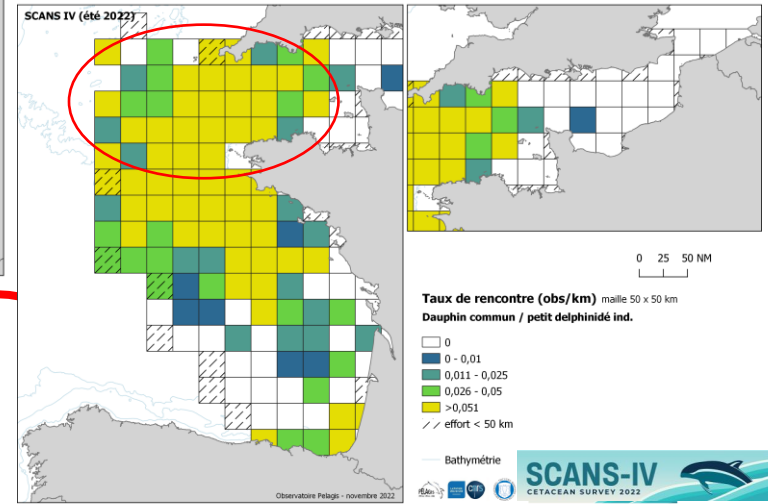
Winter 2021



Summer 2016



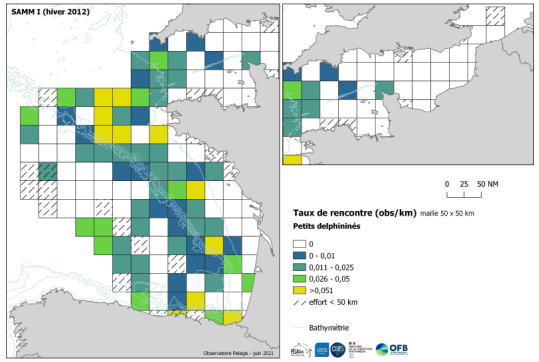
Summer 2022



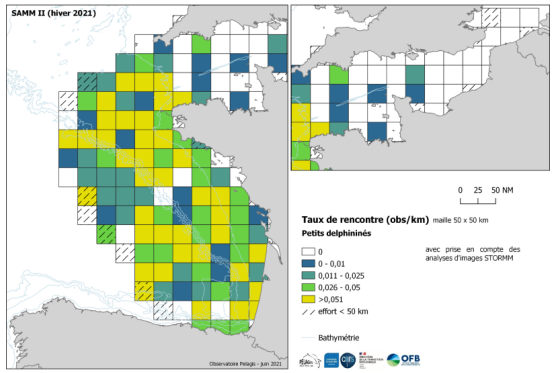
Blanchard et al. 2021, and unpublish Pelagis

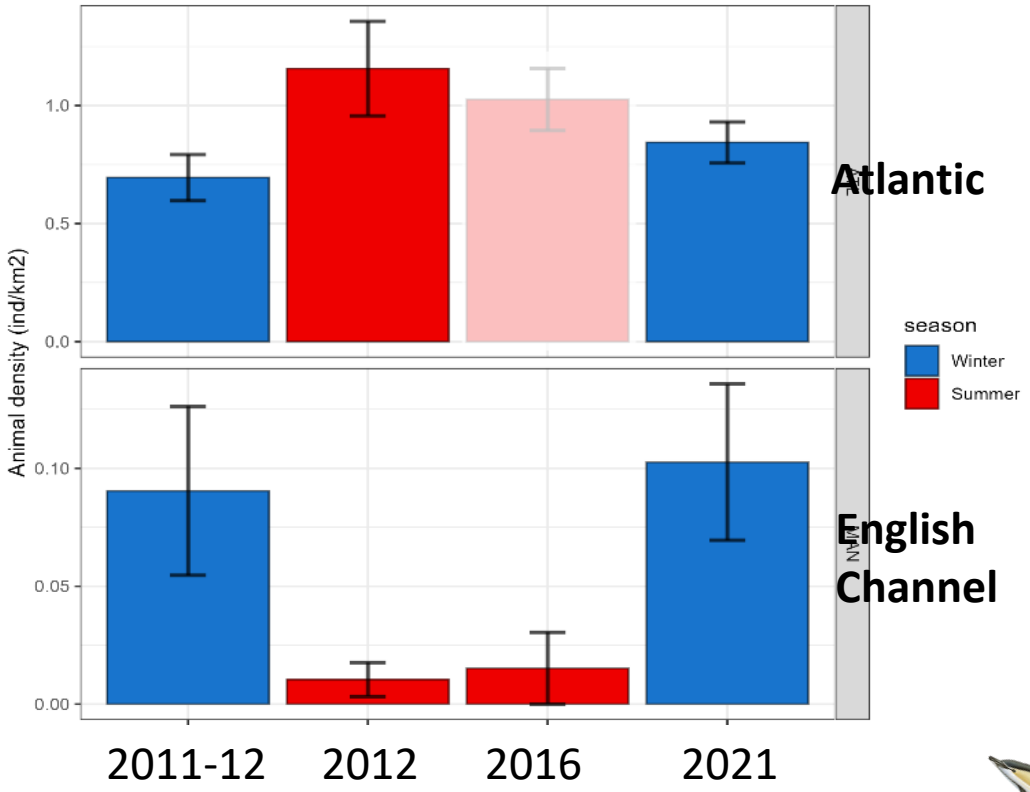
Small delphininae in winter: 2012 and 2021

Winter 2012



Winter 2021

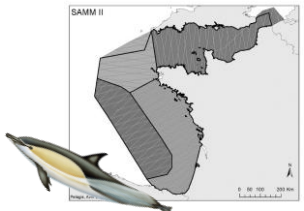




- Density reduced in the northern shelf Atlantic, but group spread over all Atlantic strata
- Relatively stable winter abundance in the area :

→ 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 delphinae)

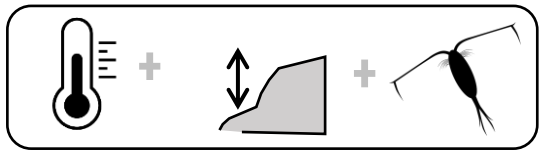


→ **181 000 common dolphins in winter 2021 (IC 95% : 128 000- 258 000)** for the area (131 200 Km²)

Laran et al 2022.SAMM II report

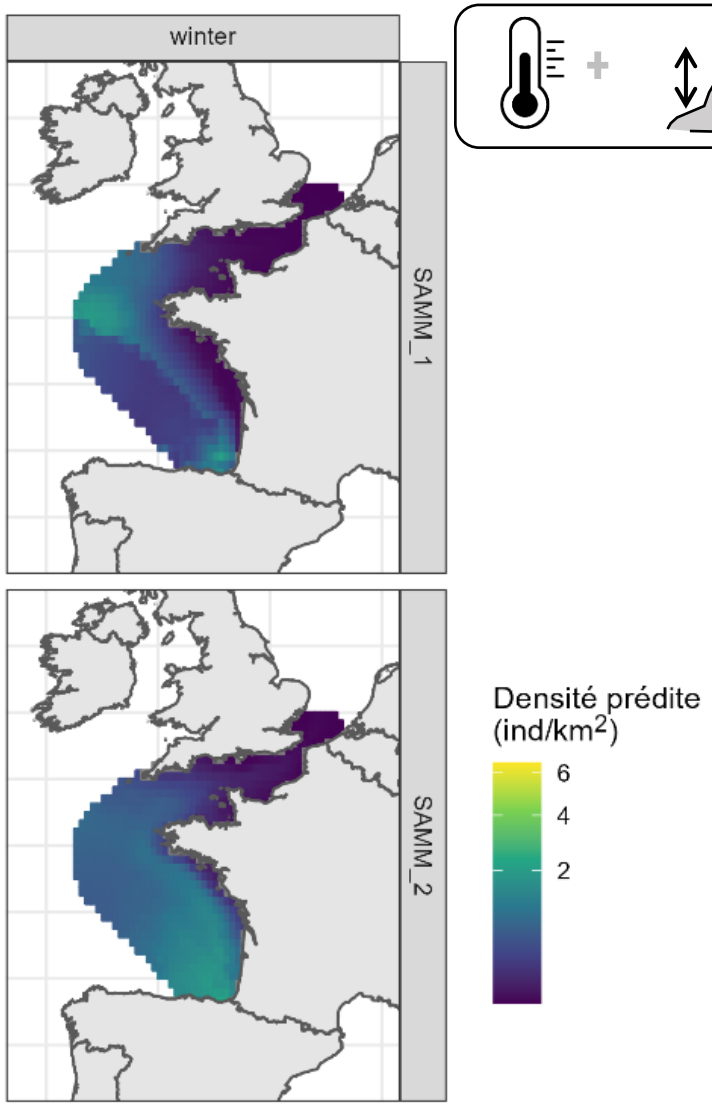
Small delphininae

Global (winter&summer) model

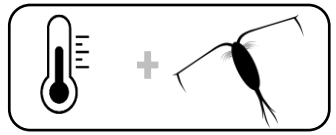


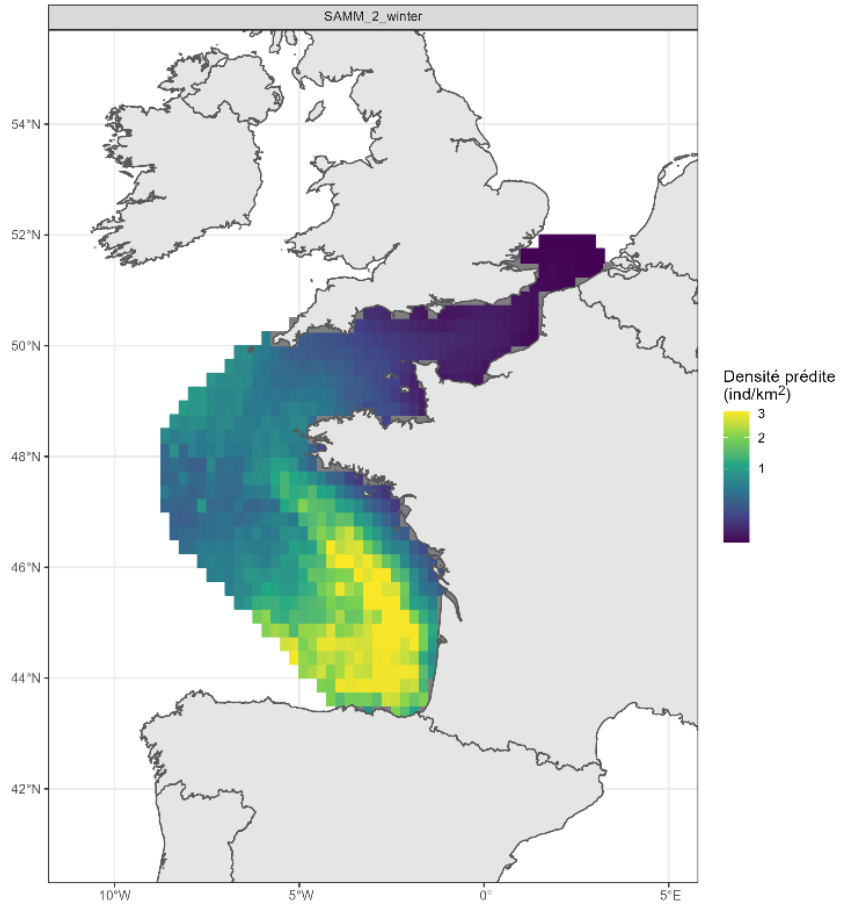
Winter 2011-12

Winter 2021



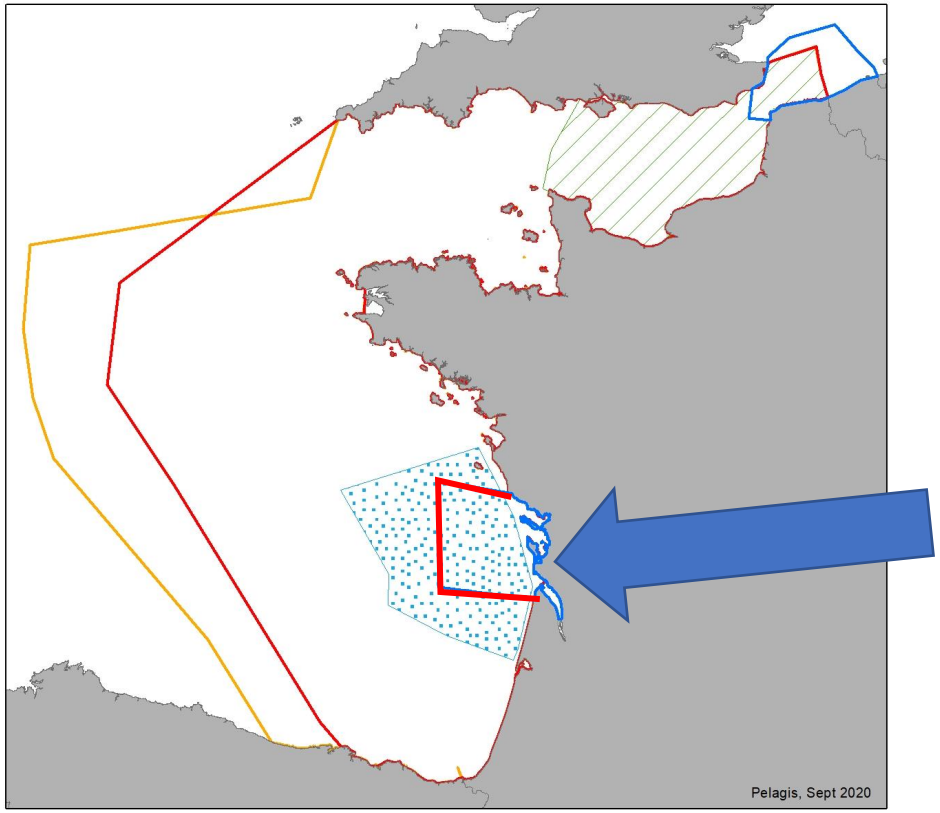
Single winter 2021 model

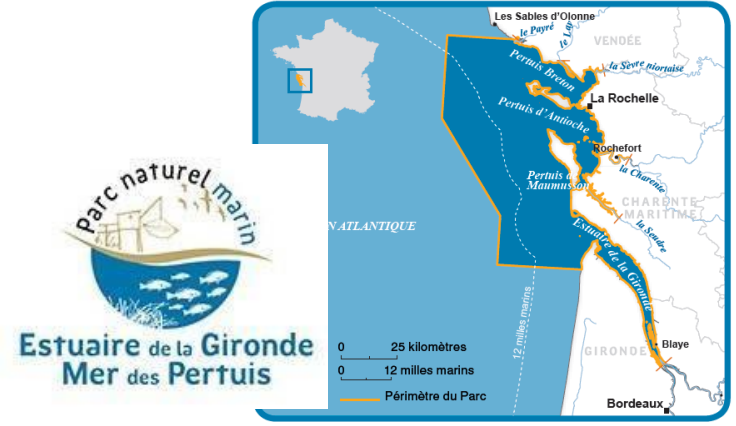




Laran et al 2022.SAMM II report

Seasonal variation at small-scale





SPEE seaonal surveys for a MPA (2019-22)

Area : 15 000km²
2,500 km/ session
4 sessions /year
2 years

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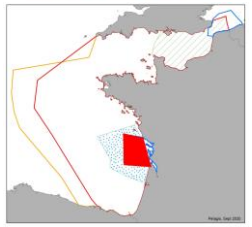
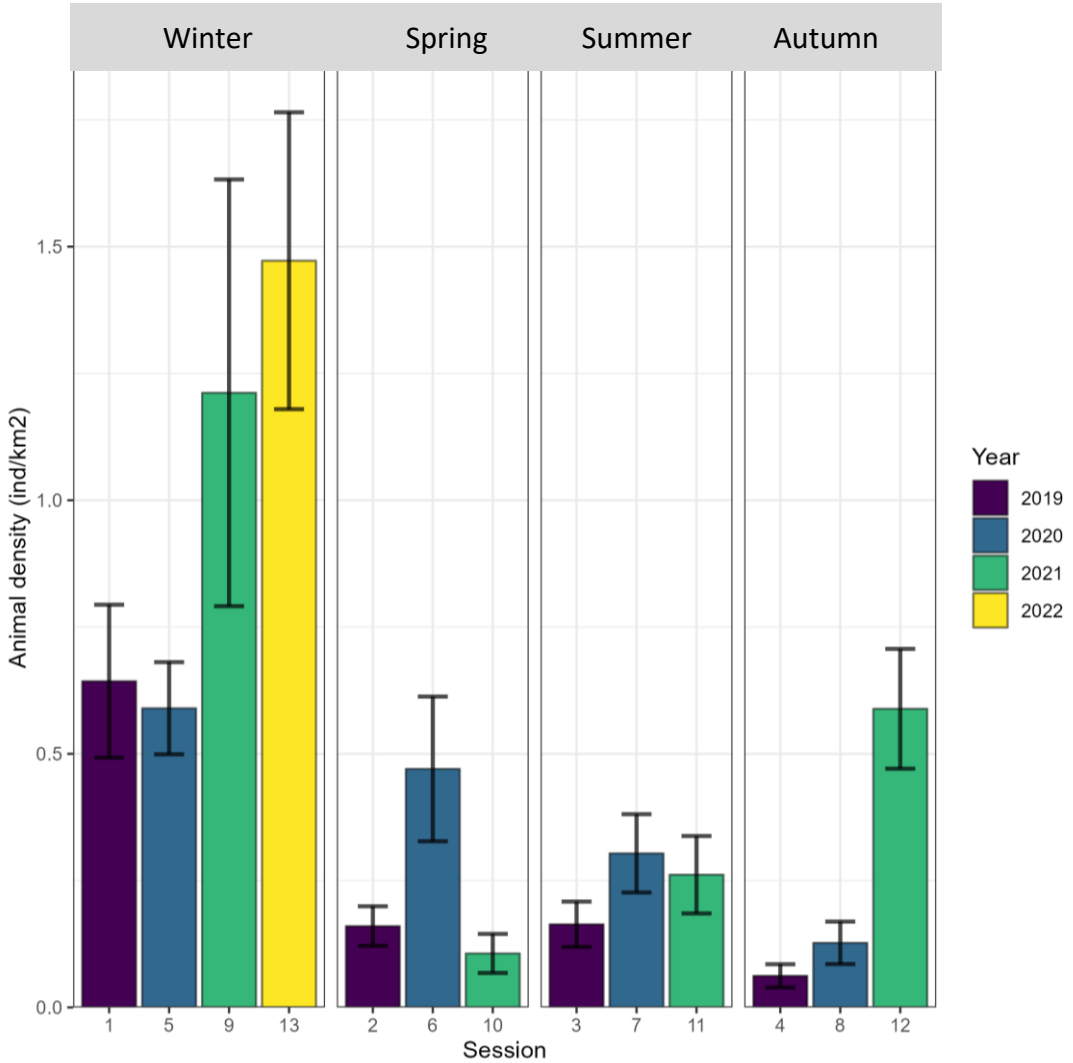
Parc naturel marin Estuaire de la Gironde Mer des Pertuis

OFB OFFICE FRANÇAIS DE LA BIODIVERSITÉ

SPEE (Marine Park)



Seasonal densities in the area by CDS (2019-2022)

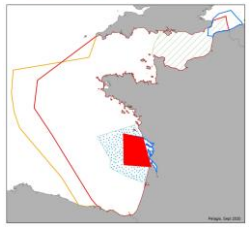


Small delphininae

- Maximum in winter
- Interannual variation

SPEE (Marine Park)

Estuaire de la Gironde Mer des Pertuis



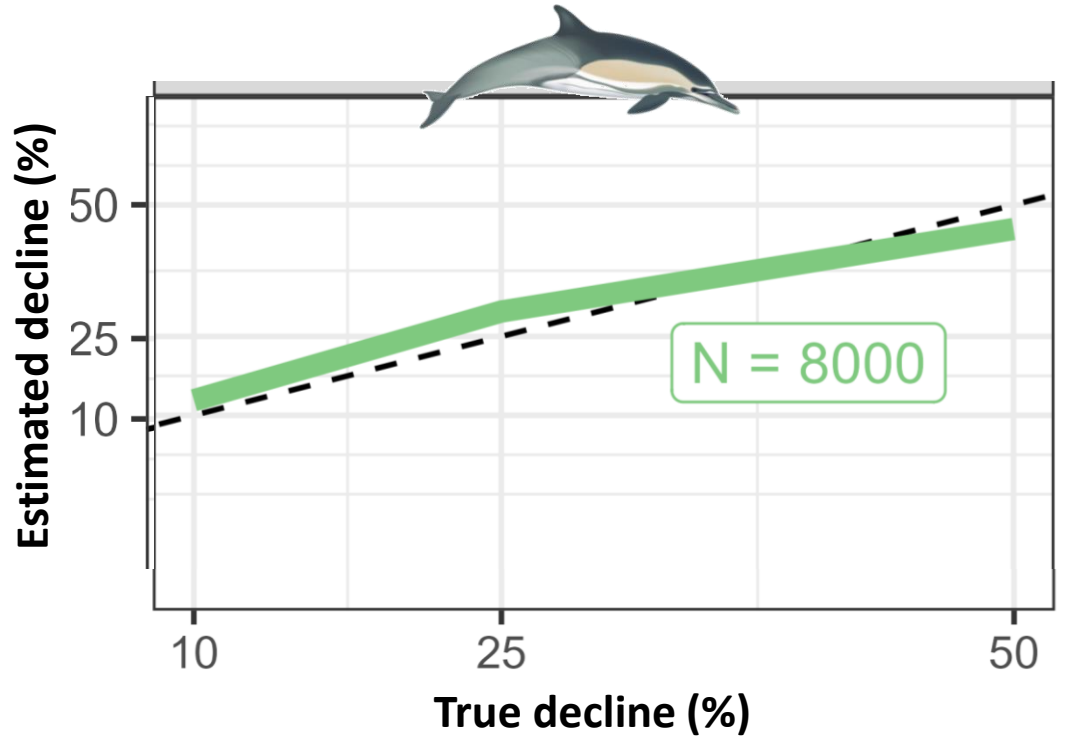
Small delphininae

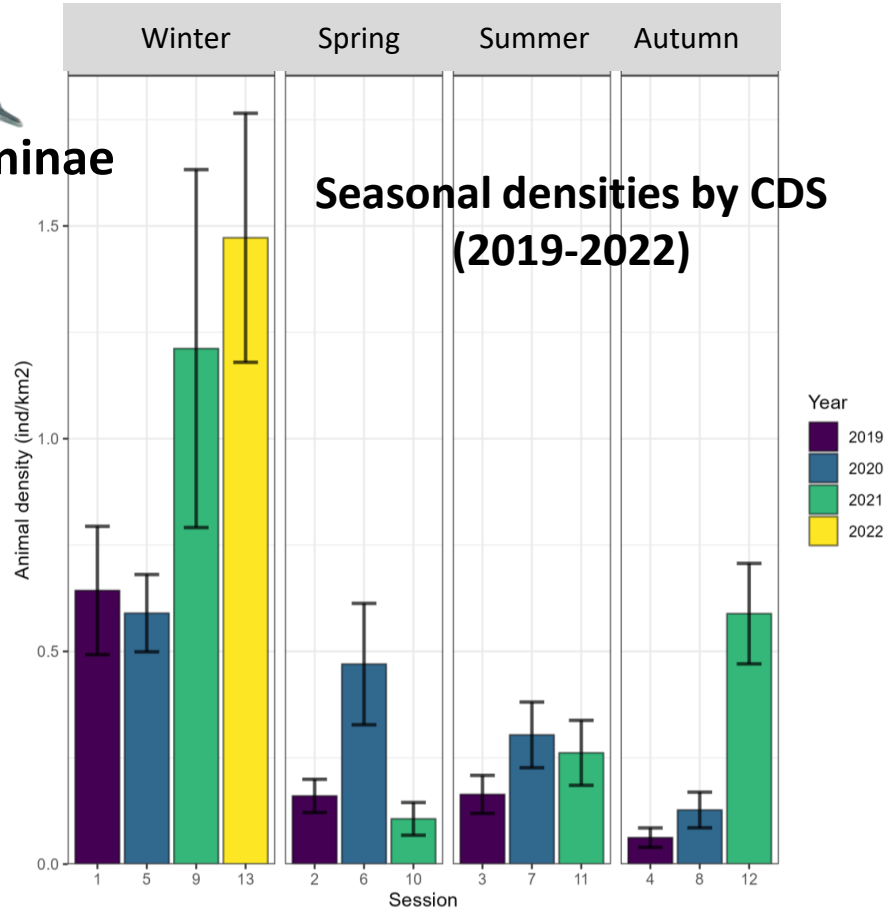
Power analysis

- *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



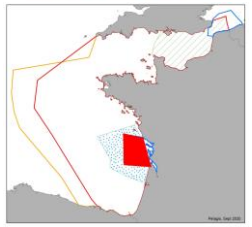


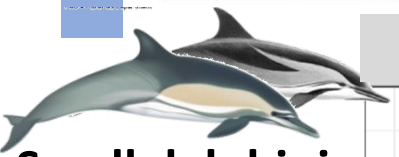
SPEE report 2022 , in prep

Spitz et al 2021.SPEE report

SPEE (Marine Park)

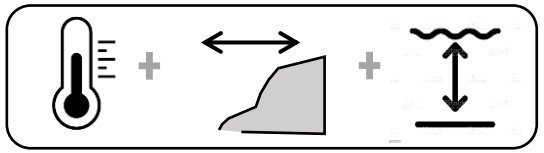
Estuaire de la Gironde Mer des Pertuis



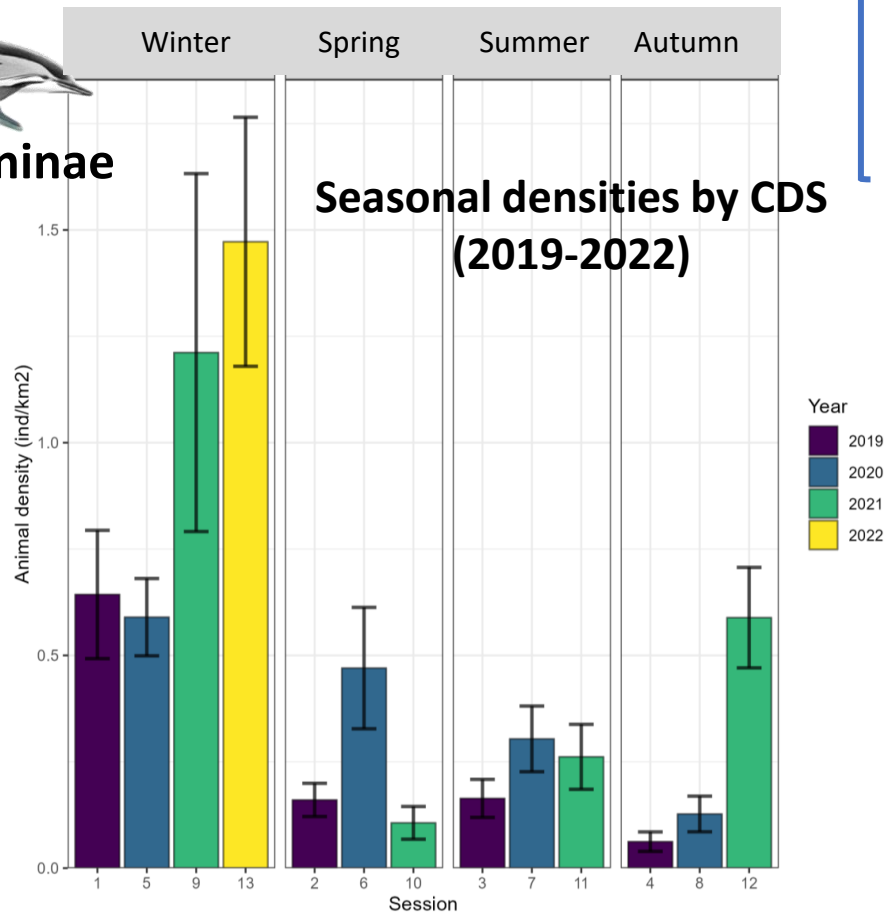


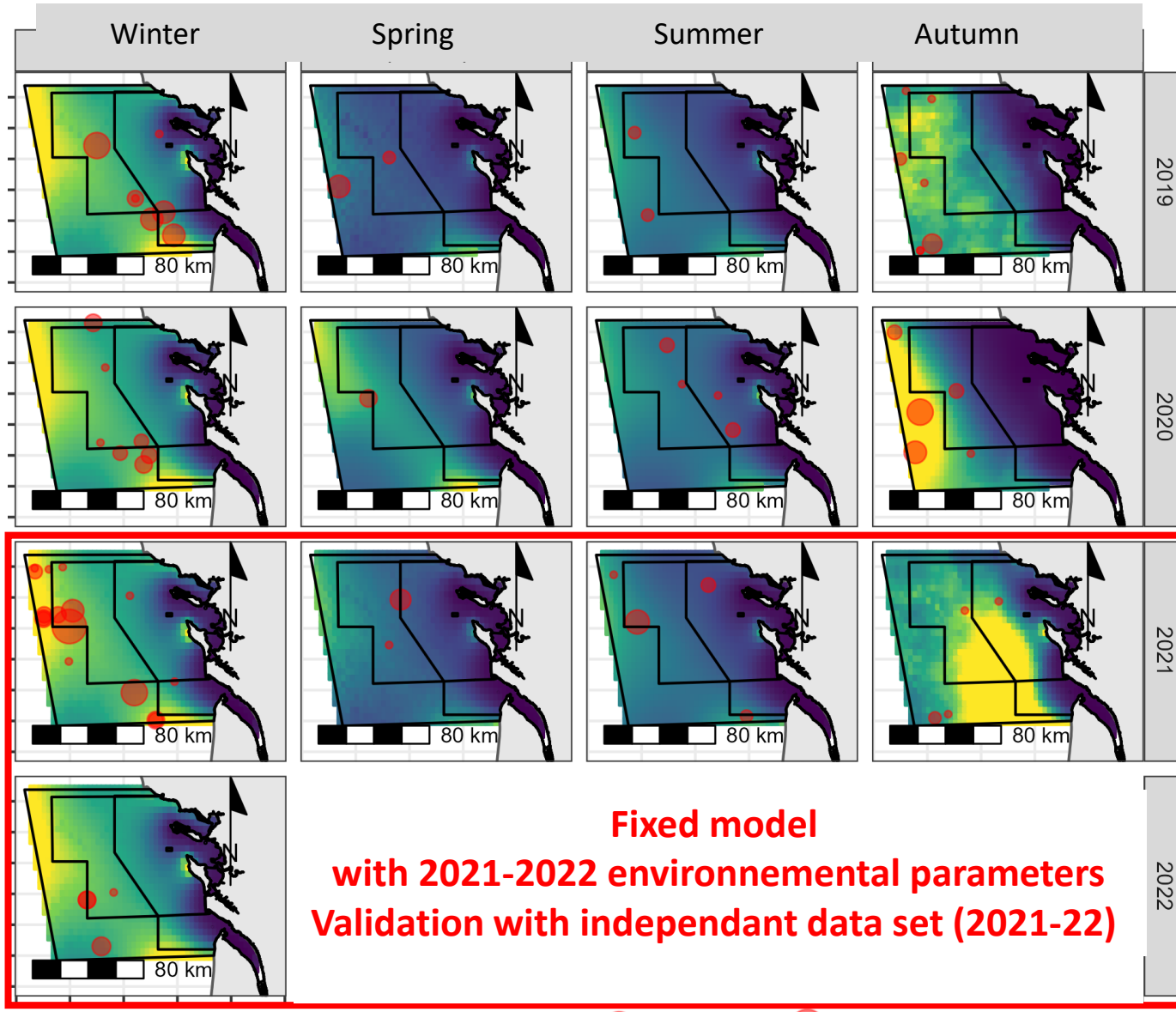
Small delphininae

Seasonal DSM (2019-2020)



Seasonal densities by CDS (2019-2022)





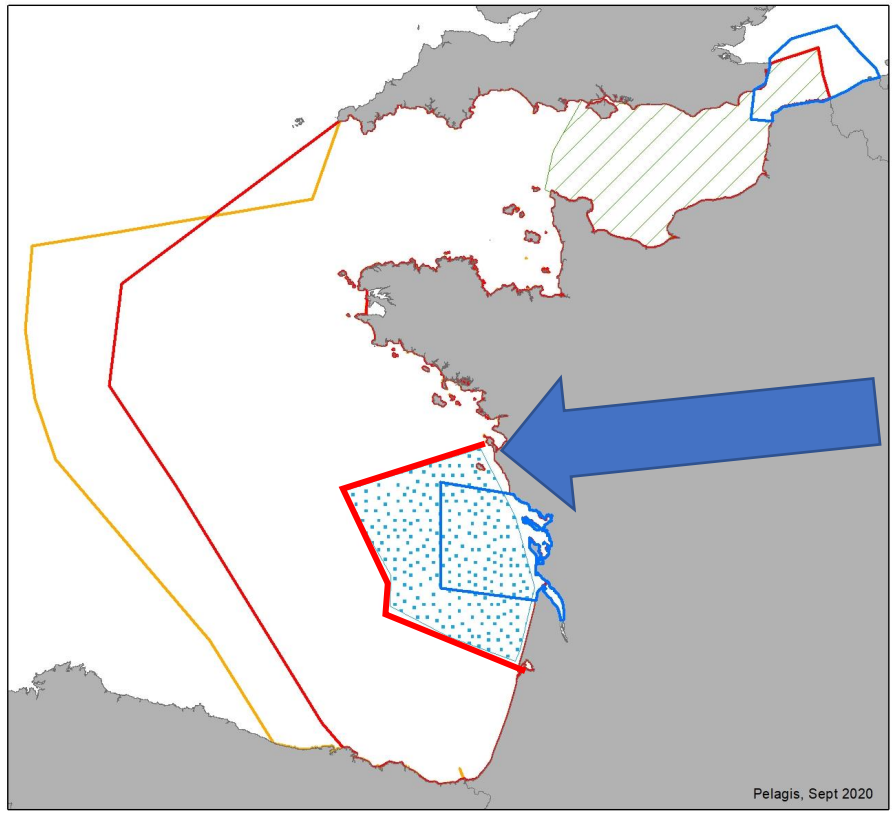
Fixed model
with 2021-2022 environnemental parameters
Validation with independant data set (2021-22)

size 10 20 30

Density (ind per km²)
0.5 1.0 1.5

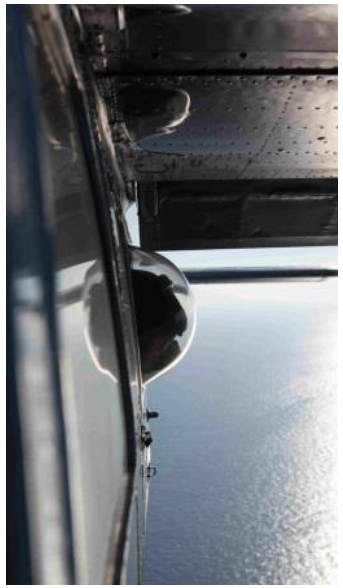
SPEE report 2022 , in prep

Small-scale change in winter



CAPECET (Jan-Mar 2020
Jan-Mar 2023)

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



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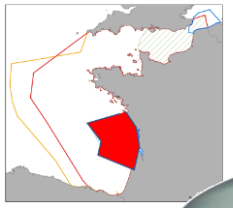
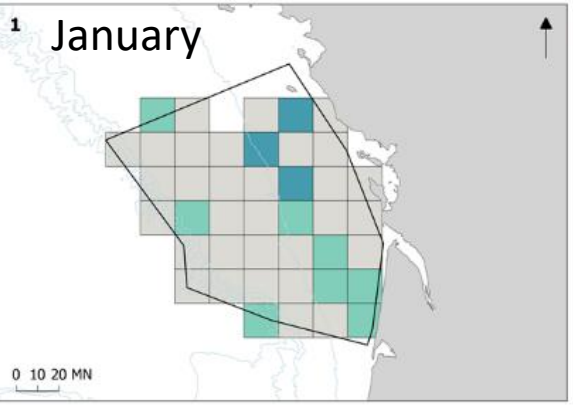
CAPECET

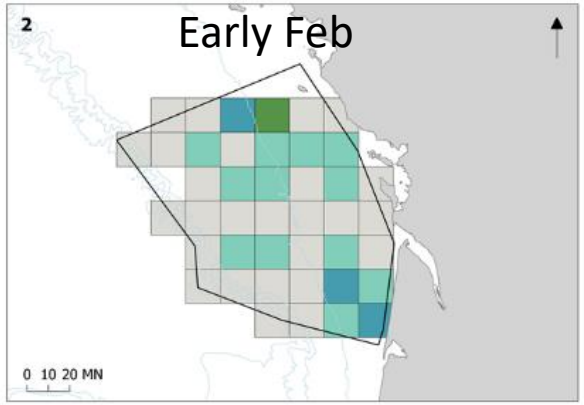


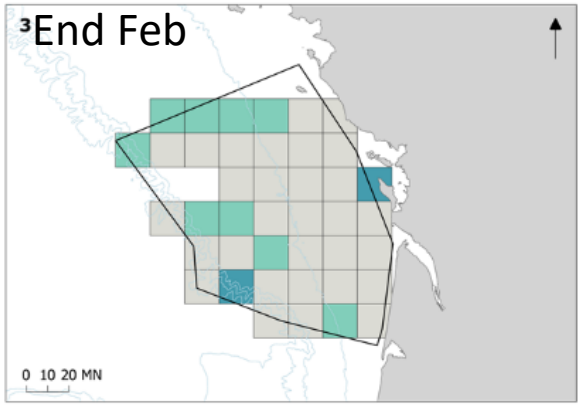
winter 2020

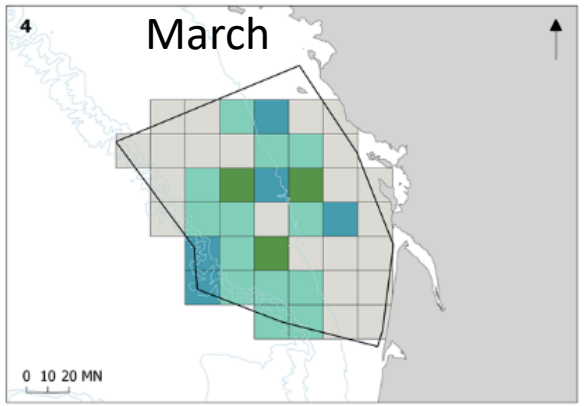
Small delphininae

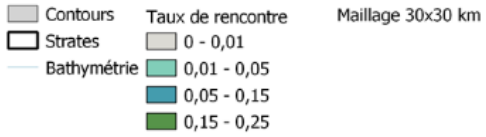
Encounter rate (sighting/Km)





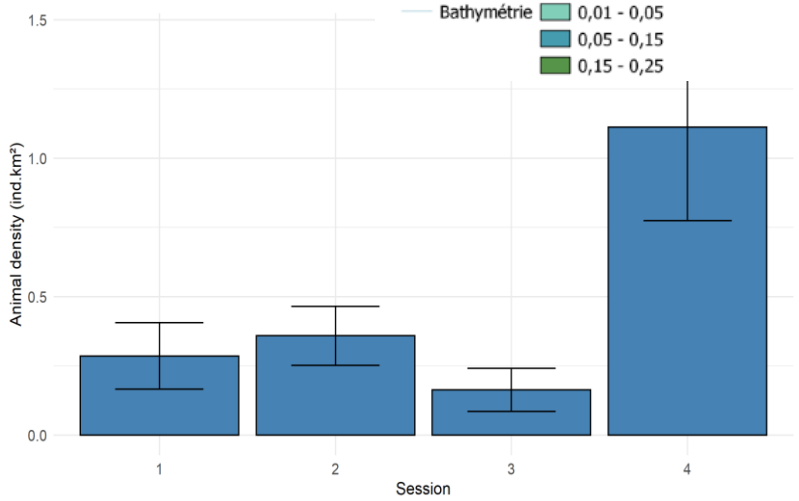






Observatoire Pelagis - Avril 2020
Projection: Lambert 93
Bathymétrie -Trait de cote : GEBCO14 - GADM

Density (individuals. Km^{-2})



Jan-Mar 2023 same monitoring for **Delmoges** project
(**DEL**phinus **MO**uvements **GES**tion)

Partenaires scientifiques :

Financeurs :

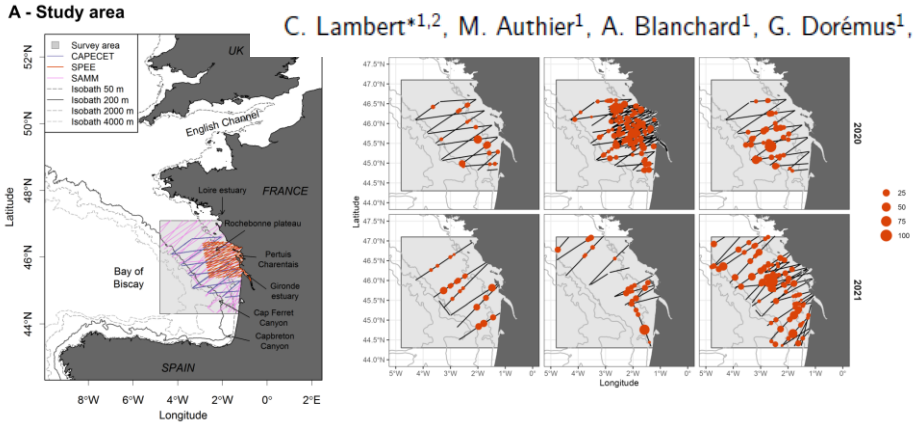
GOUVERNEMENT

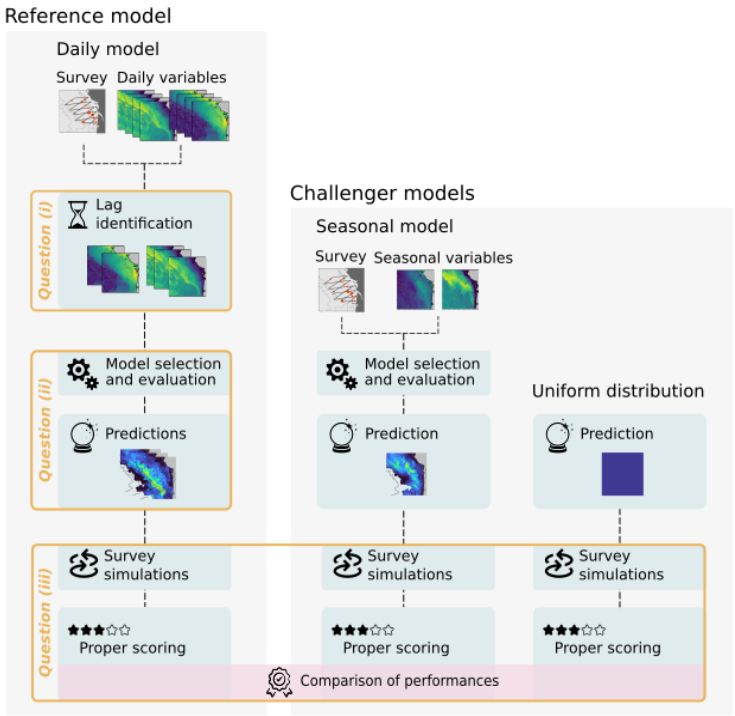
Van Canneyt et al, 2020, CAPECET report

ROYAL SOCIETY OPEN SCIENCE

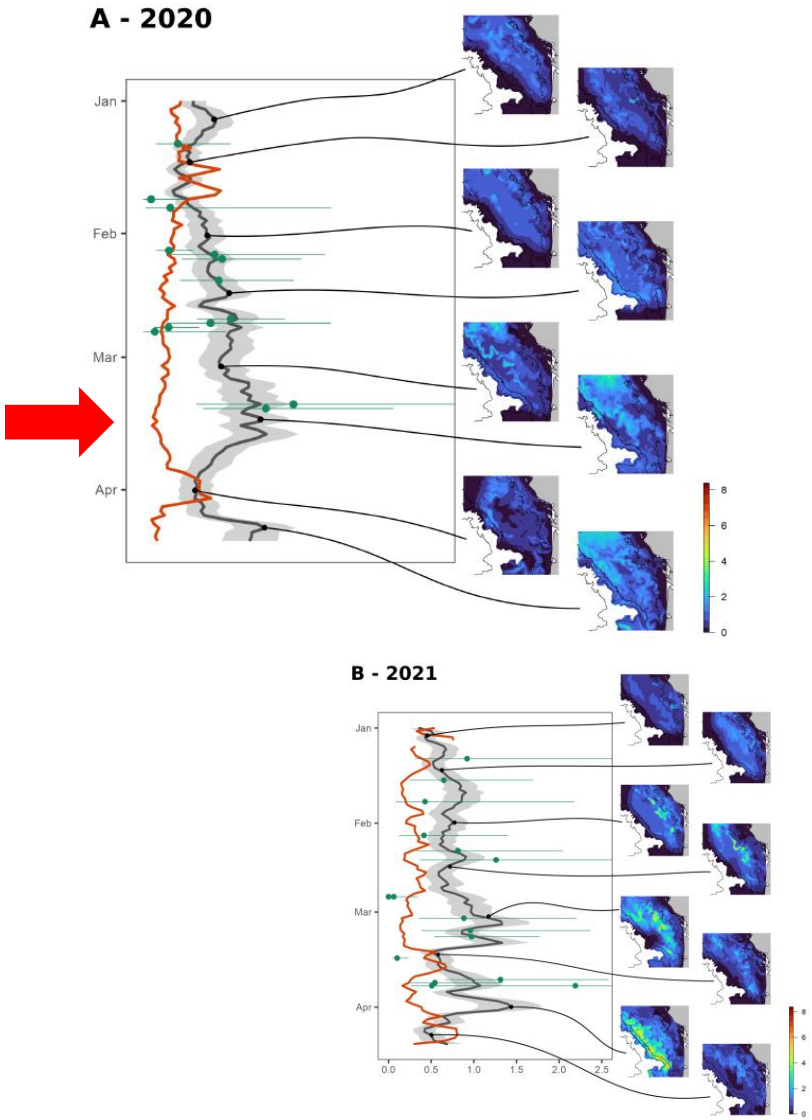
Delayed response to environmental conditions and infra-seasonal dynamics of the short-beaked common dolphin distribution

C. Lambert*[1,2], M. Authier[1], A. Blanchard[1], G. Dorémus[1], S. Laran[1], O. Van Canneyt[1], and J. Spitz[1,2]

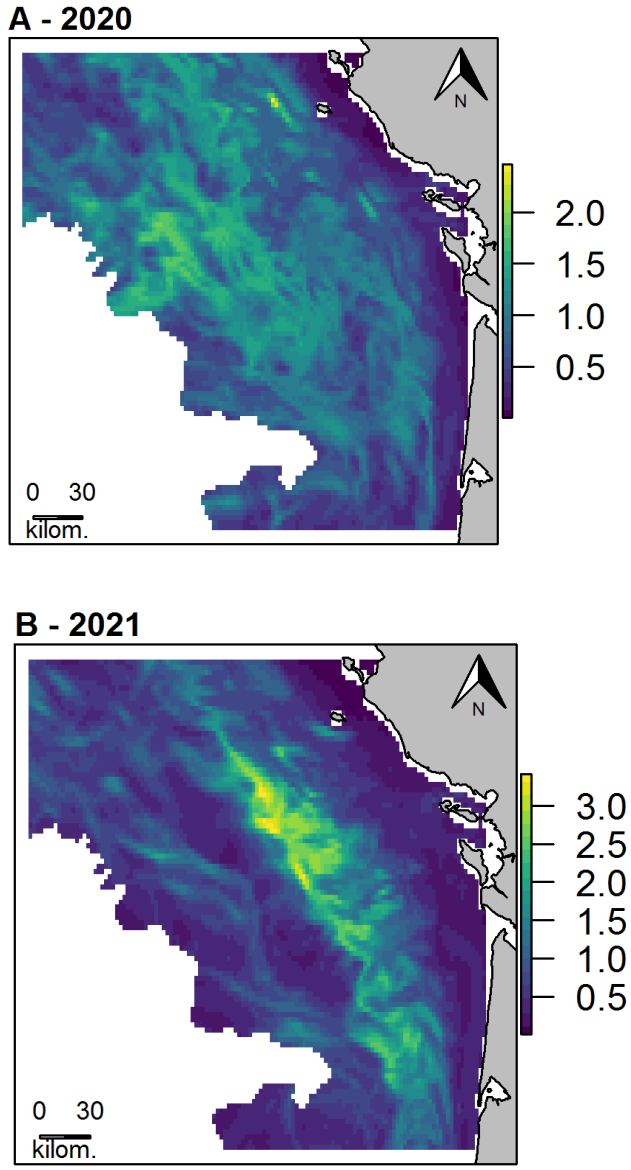




Daily model



Seasonal model



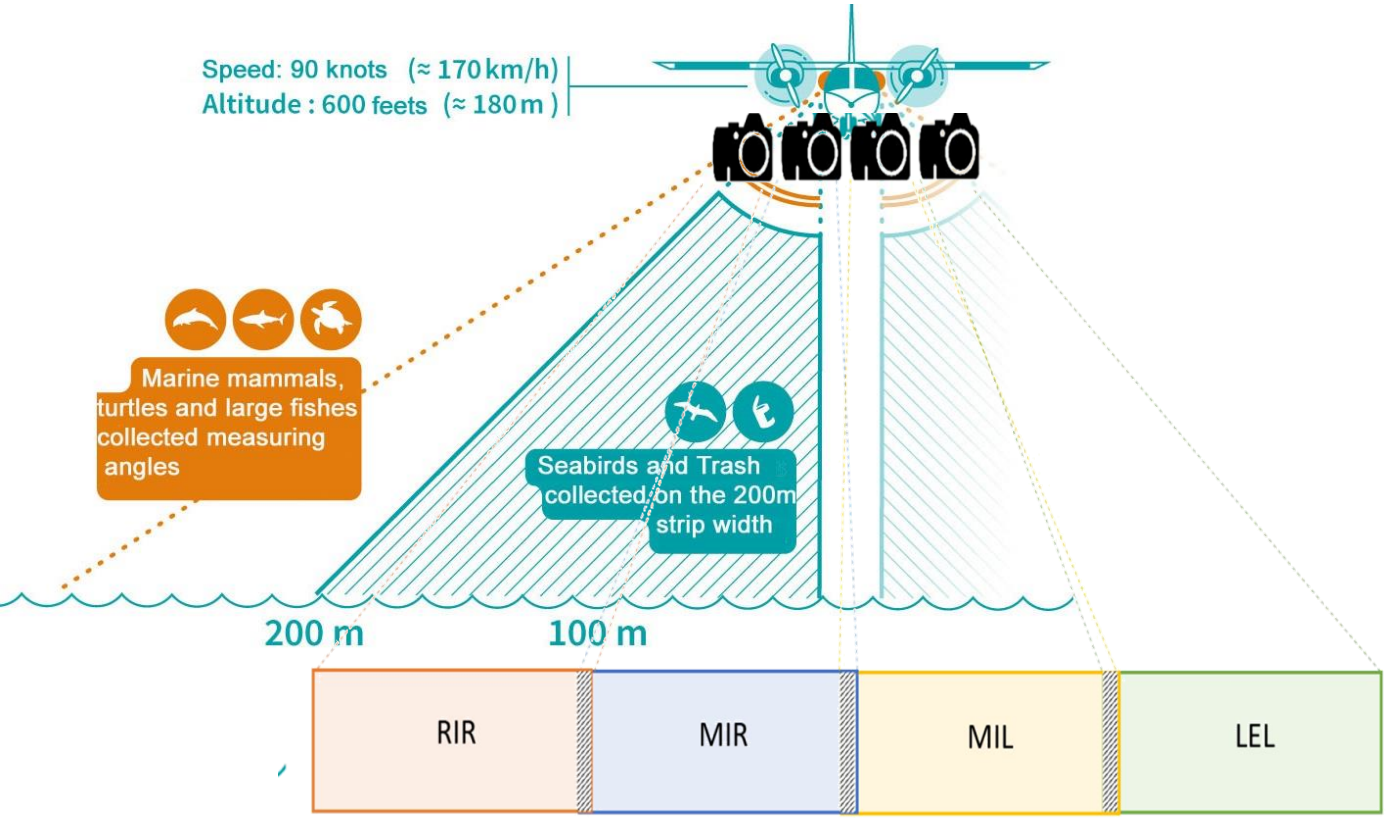
Lambert et al. Accepted. RSOS

STORMM
Digital acquisition as support of visual observation

by HyTECH Imaging and PELAGIS UMS 3462 - LRUniv - CNRS La Rochelle Université cnrs

STORMM

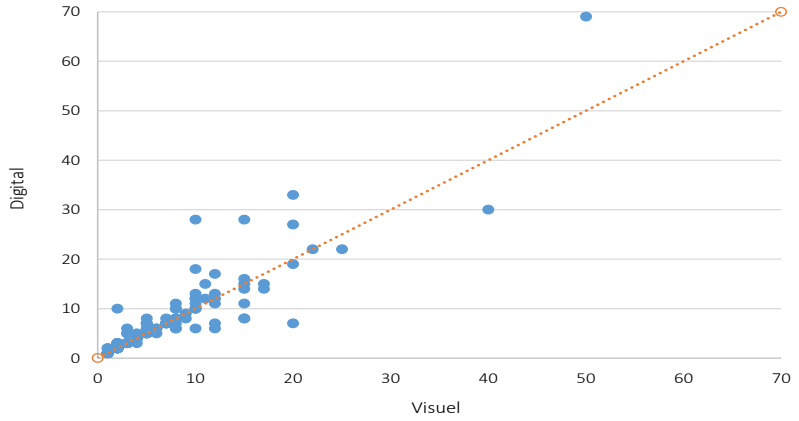
Digital acquisition as support of visual observation



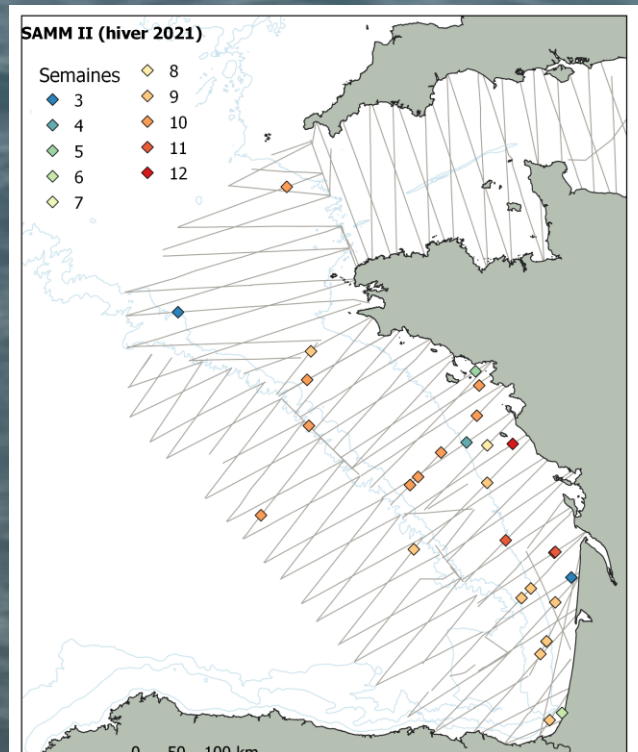
✓ Objectives : Improve the species identification and pod size estimates

→ 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)



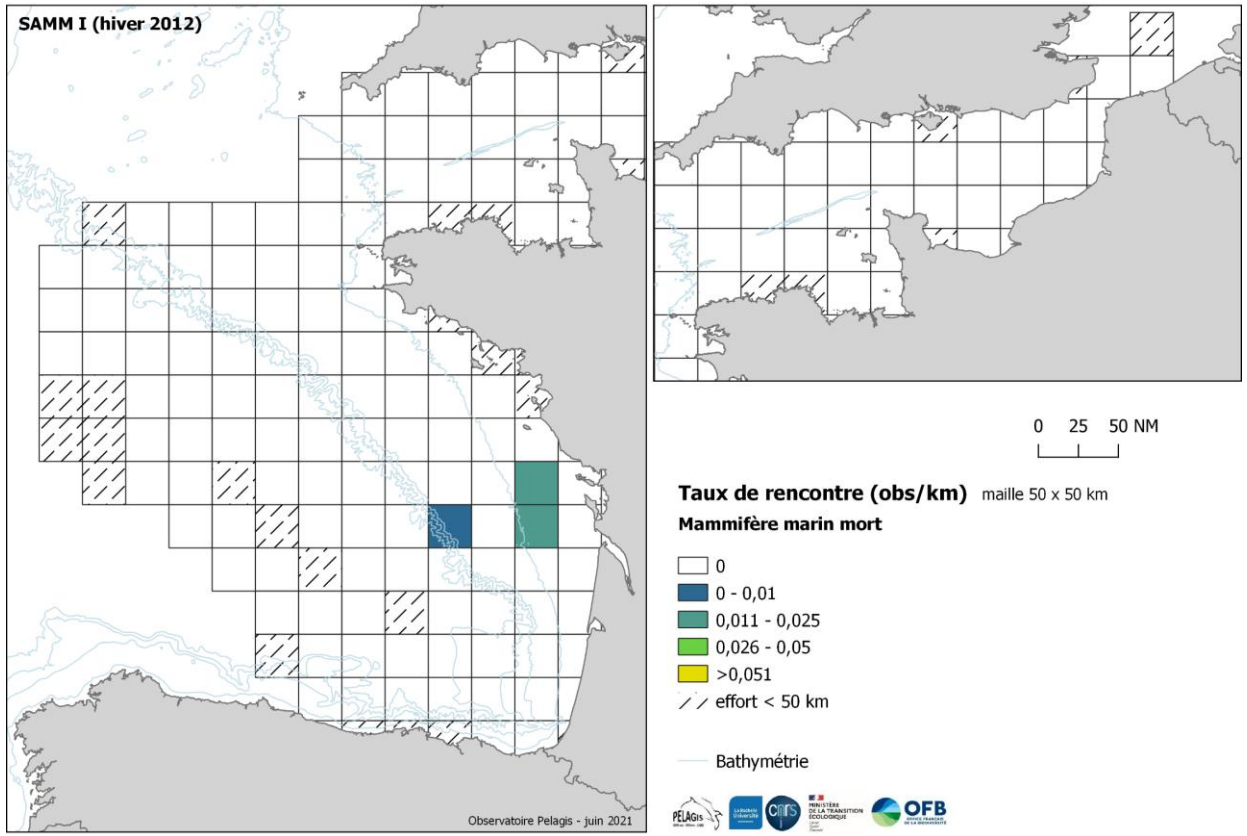
Using aerial survey to count cetacean carcass floating at sea



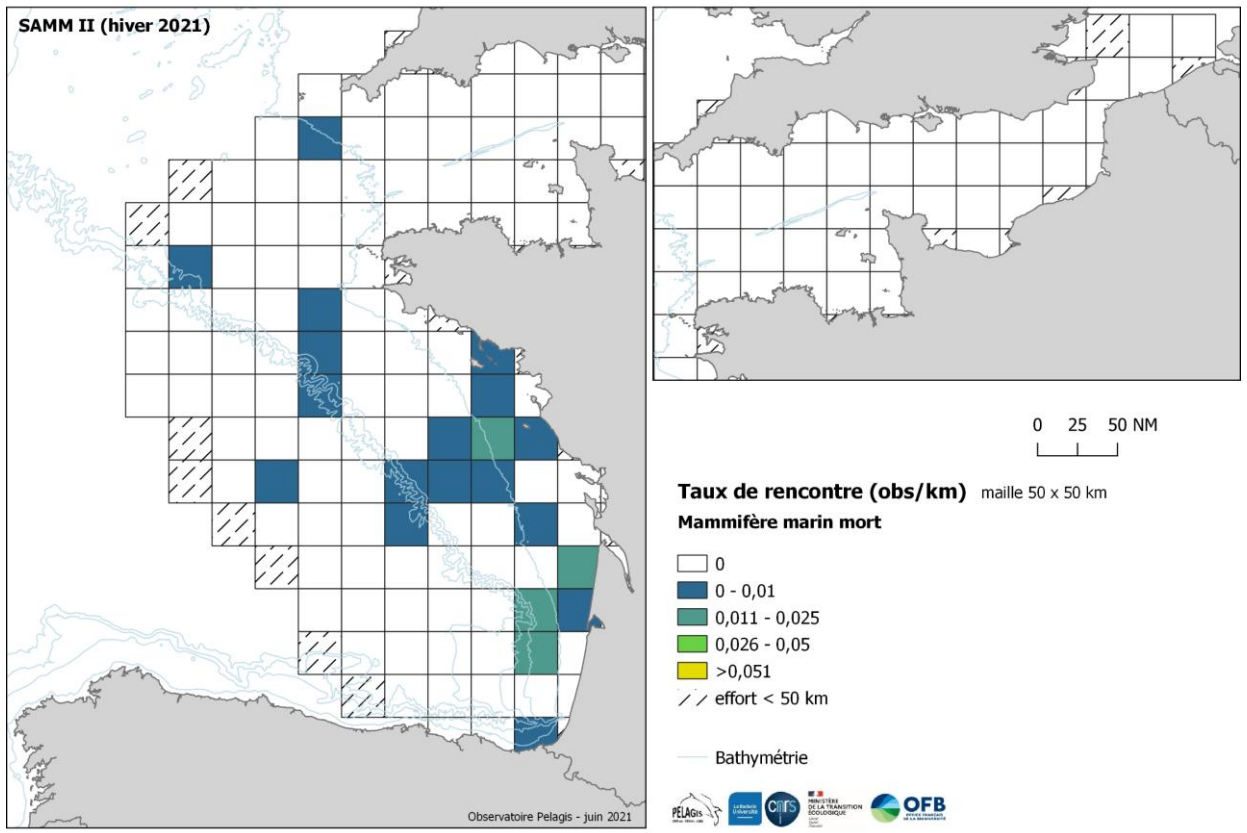
Dead cetaceans at sea during SAMM II Winter 2021

Small cetaceans dead at surface in winter

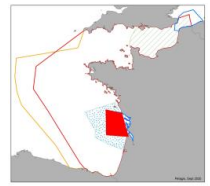
Winter 2012



Winter 2021



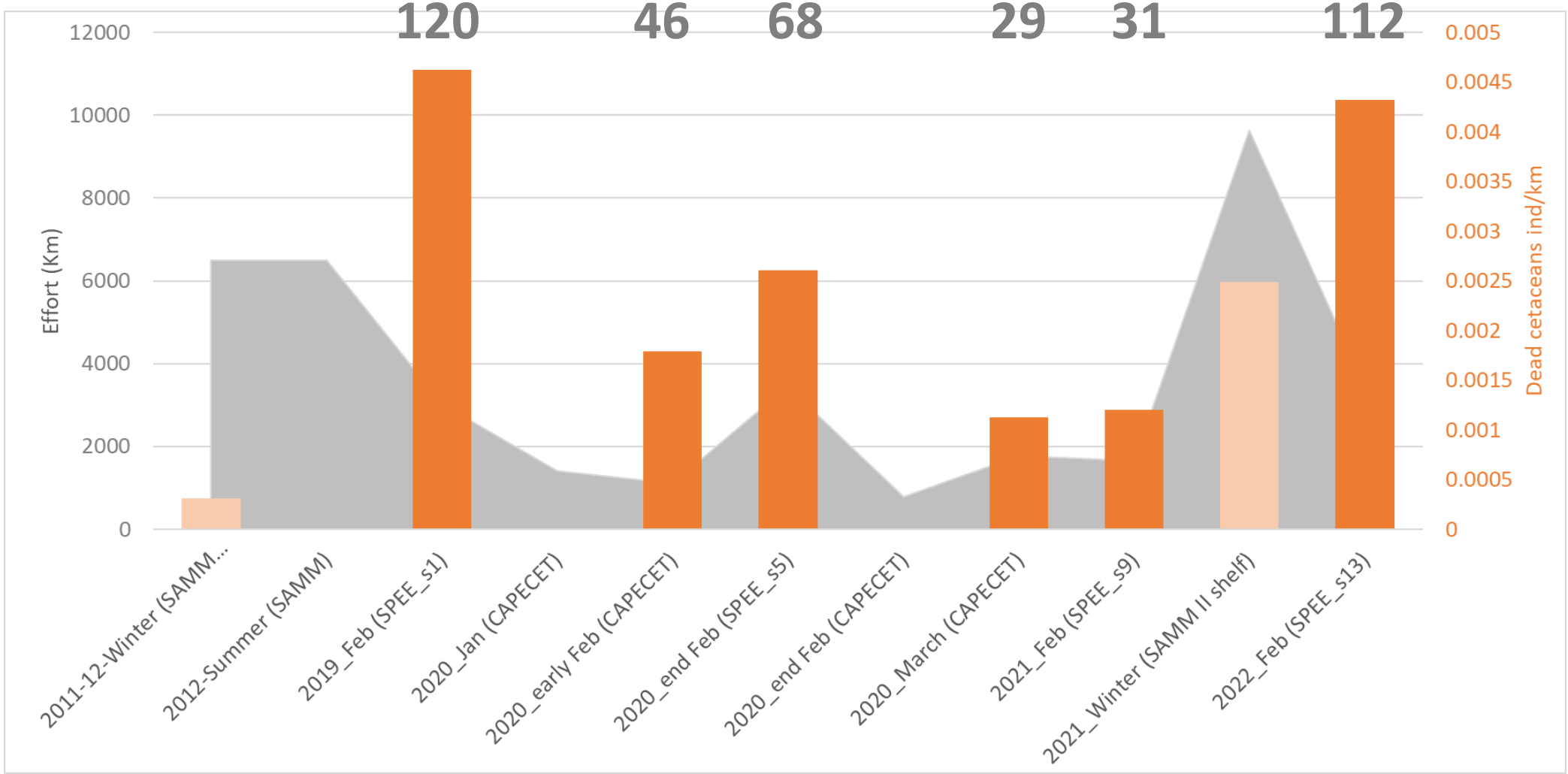
Small cetaceans dead at surface [2019-22]

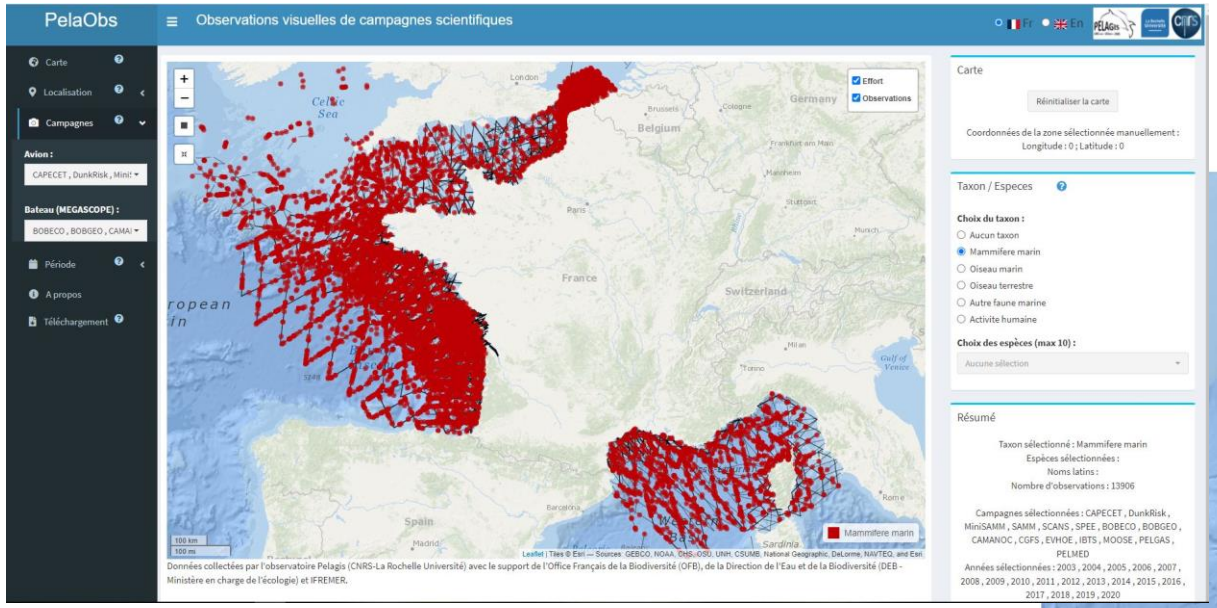


Estimated number of floating carcasses (CDS for SPEE block area)

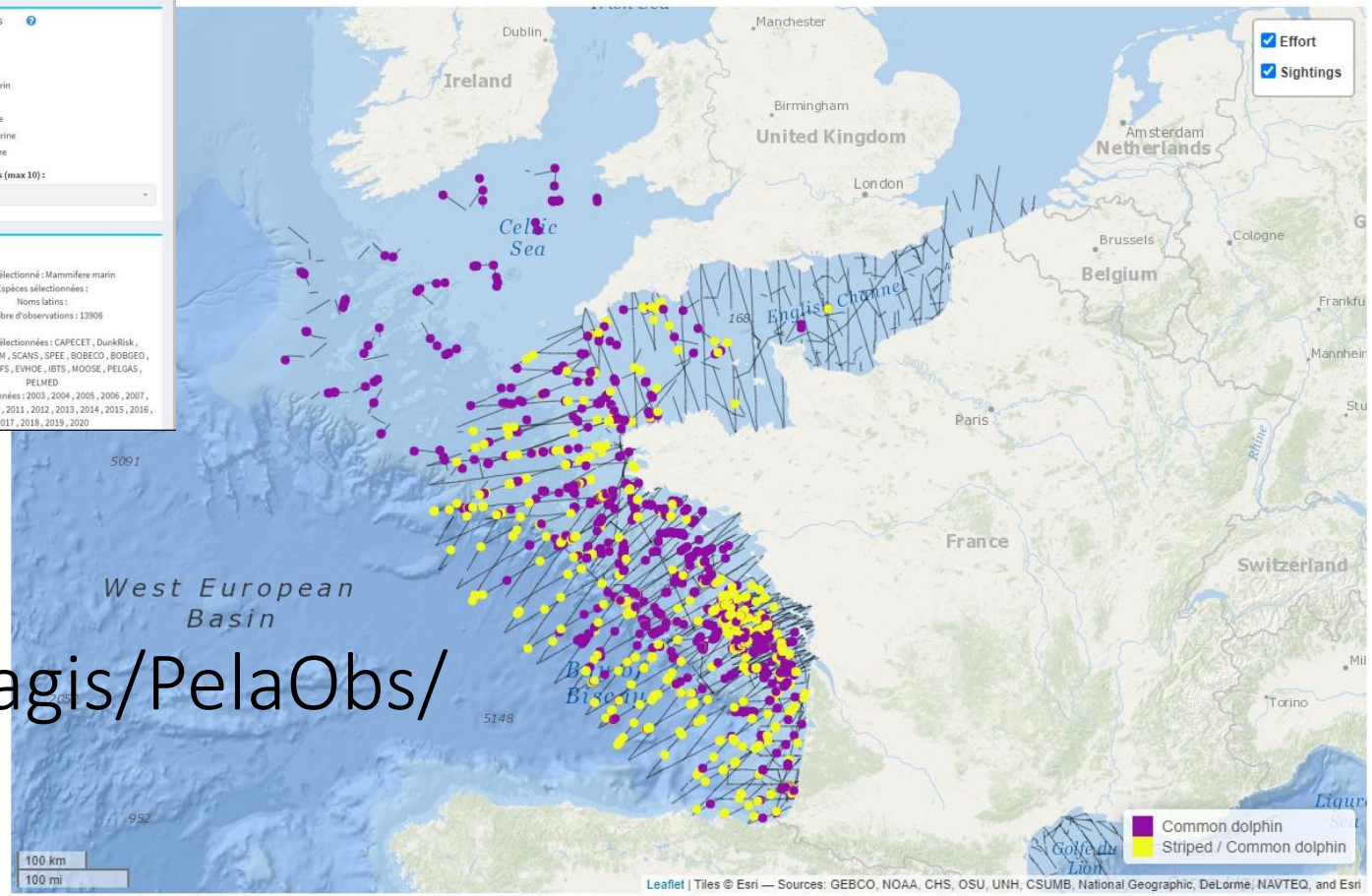
Effort (km)

Dead cetacean /Km





2021's sightings already available on line
(for boat and aerial surveys)



Data collected by Pelagis (CNRS-La Rochelle University) with the support of the French Biodiversity Agency (OFB), the Department of Water and Biodiversity (DEB - Ministry of Ecology) and IFREMER.

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

Survey reports available on
https://www.observatoire-pelagis.cnrs.fr/suivis-en-mer/suivis-aerien/

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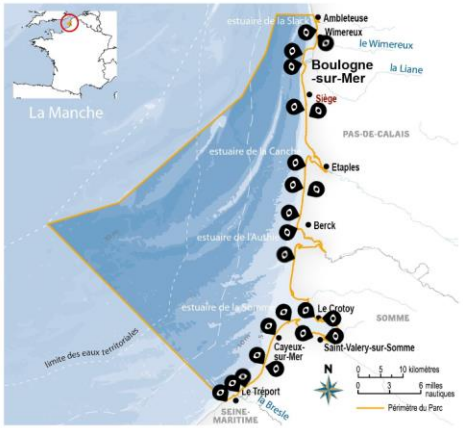
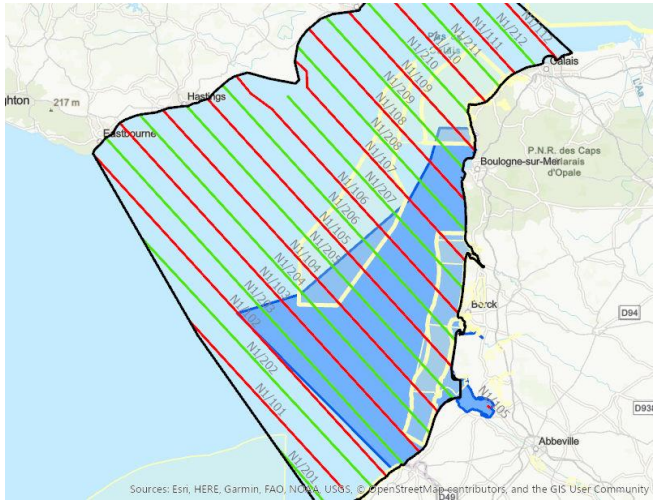
On going project
MAMO survey : New seasonal survey at small-scales

October 2022 – August 2024

Parc naturel marin
Estuaires picards
Mer d'Opale





RÉPUBLIQUE FRANÇAISE
Liberté Égalité Fraternité

OFB
OFFICE FRANÇAIS DE LA BIODIVERSITÉ

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

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