DRACCAR-MMERMAID

Monitoring marine megafauna in an offshore wind farm context

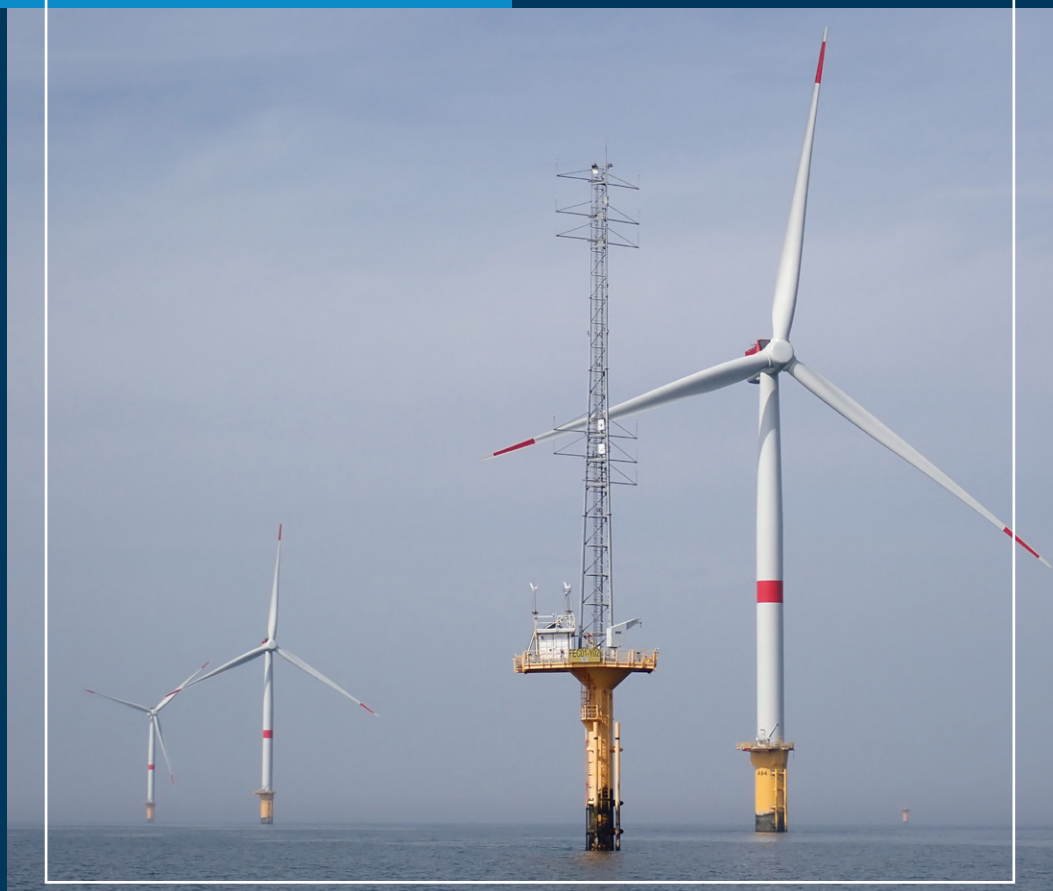
Newsletter #2

May 2025

IN SHORT

« In recent months, numerous instruments have been deployed on both the aerial and underwater sections of the Fécamp met mast to monitor animals moving near the offshore wind farm. Birds, in particular, are being tracked using a range of complementary tools: GPS tags, HD cameras, camera traps, and a Motus station. This newsletter focuses on that aspect. A large volume of data has already been collected. To facilitate its processing, an initial participatory annotation campaign has been carried out, and artificial intelligence tools are currently being developed. Ultimately, the project will provide effective monitoring methods that will help better assess the impact of offshore wind farms on birds

Karine Heerah, scientific coordinator of the project



Birds are monitored from the mast using a range of instruments

48 months (2023-2027)

Total budget: 6,3 M€

PARTNERS

FRANCE ENERGIES MARINES · EDF · EDF renouvelables · Parc éolien en mer de Fécamp · Université Caen Normandie · ENSTA BRETAGNE · RTE Le réseau de transport d'électricité · GOMix · IBERDROLA · Quiet Oceans · exail · CeSigma · GIS ÉOLIEN EN MER · IMT Atlantique Bretagne-Pays de la Loire École Mines-Télécom · Muséum National d'Histoire Naturelle · UMS Patrimoine Naturel · TotalEnergies · RWE · FEBUS optics · skyborn · ulco Université · UBO Université de Bretagne Occidentale

FRANCE 2030

This project receives French State funding managed by the National Research Agency under the France 2030 investment plan

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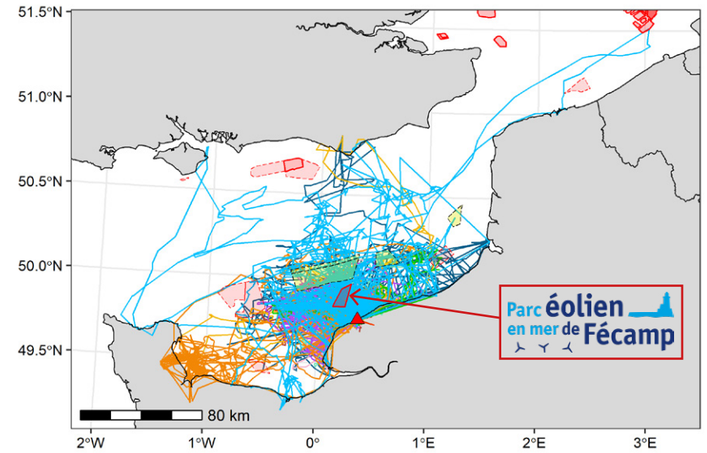
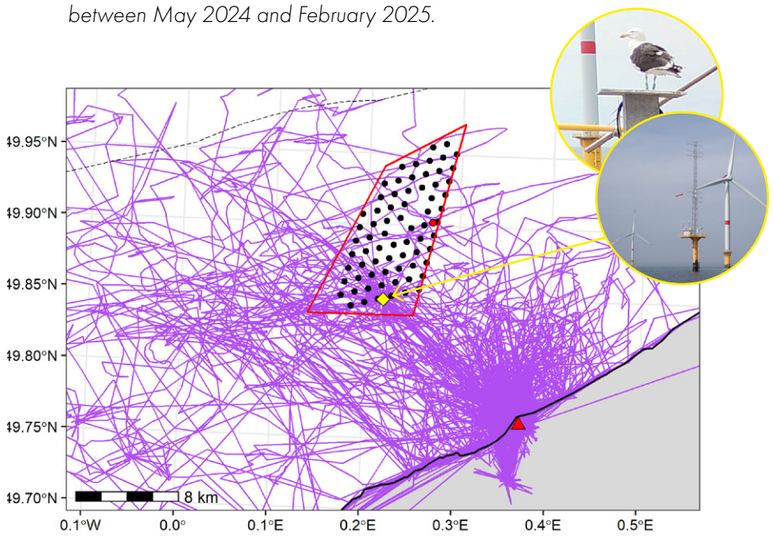
Gulls tracked by GPS

In May 2024, ten great black-backed gulls were fitted with GPS/GSM tags in Fécamp with the support of the Groupe Ornithologique Normand (GONm). Since then, the movements of these individuals have been closely monitored, allowing researchers to visualise the marine areas used by the birds. Some of them occasionally visit the Fécamp offshore wind farm. This is the case for individual FC07, nicknamed Fernande, who travels around the wind farm (purple track) and regularly lands on the Fécamp met mast, located on the edge of the park (yellow diamond). Fernande has often been "caught on camera" by the camera traps installed on the mast (see comic strip on the last page).

In May 2025, ten more individuals were equipped with GPS/GSM tags, further enriching the telemetry tracking database. The tracks of birds within the wind farm will be specifically analysed to better understand the interactions between the wind farm and the great black-backed gulls.



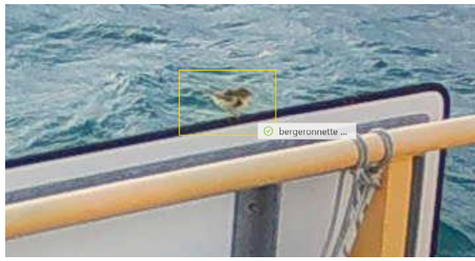
Combined plots of the movements of ten great black-backed gulls between May 2024 and February 2025.



Plot of the movements of individual FC07 known as 'Fernande' between May 2024 and February 2025. The red frame delimits the Fécamp offshore wind farm, while the yellow diamond indicates the location of the mast.

A successful first participatory annotation campaign

32,361 — that's the number of images from the camera traps on the Fécamp mast that were annotated in just one month through a participatory campaign conducted between last December and January as part of the project. Thanks to the efforts of 26 participants, 2,422 birds were identified: 2,383 great black-backed gulls, 29 herring gulls, 4 yellow-legged gulls, 4 peregrine falcons, 1 white wagtail, and 1 rock pigeon were recorded perching on the mast! Project partners actively contributed to this effort. All annotations were subsequently reviewed and confirmed by experts from the Groupe Ornithologique Normand. These annotations will be used to train artificial intelligence algorithms — first to automatically detect birds, and then to identify certain species. This annotation work is essential for analysing the full set of collected data. 100% of the images available at the start of the campaign were annotated and verified. Given this very positive outcome, further participatory campaigns will be organised in 2025. The current one is going on until the end of June and focuses on images from the mast's 360° video cameras.

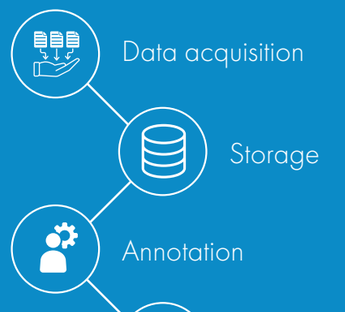


Examples of participatory annotations made on the RESCANNOT annotation platform. From top to bottom: great black-backed gull, peregrine falcon and white wagtail.

While AI should eventually make it easier to process large volumes of data (several hundred thousand images), it will never be able to do without the work of experts.

Already a lot of data!

To better understand the behaviour of birds near an offshore structure, various instruments have been deployed on the aerial part of the Fécamp mast, including 12 4K/360° cameras and 4 camera traps. Since their installation, more than 30,000 photos and 175 days of video have been recorded by these devices. A dozen operations at sea were also necessary to recover this data. Data acquisition is an important part of the DRACCAR-MMERMAID project.



AI put to work

Hundreds of terabytes of data are generated as part of the project and have to be processed before they can be analysed. This is a real challenge, and one that would be too time-consuming and tedious to carry out manually. The project team is therefore developing artificial intelligence tools to carry out this task, so that all the data collected can be used effectively. To achieve this, two steps are essential: manual annotation of datasets and training of algorithms on these annotated datasets.

Icon credits: popcornarts, lnjanamul haq miraz, arjuazka / Nounproject

A MET MAST AT SEA... MONITORING BIRDLIFE