

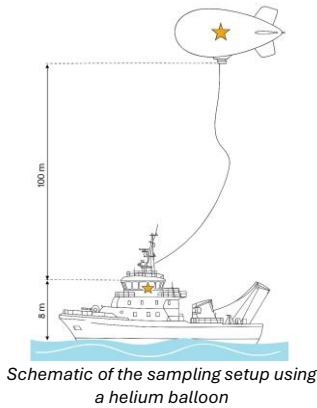
Monitoring of Bats and Nocturnal Migratory Birds at Sea

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Small nocturnal migratory birds and bats use the marine environment for their movements, sometimes flying at altitudes that overlap with wind turbine rotor zones. However, knowledge about these offshore movements remains very limited. To address this gap, an innovative acoustic monitoring method was developed, enabling a first detailed assessment of how, when and where these species use the area.



Test period: March 2024 – March 2026

Location: Future offshore wind farm off Oléron

Sampling: 8 stations over 2 nights, wind < 20 kts

Session duration: Between 1 and 1.5 hours

Acoustic recorders (x3):

- 2 on a 17 m³ helium balloon (100 m altitude)
- 1 on vessel's mast

Targets: Birds & bats, full biological cycle

Bird ID: Manual

Bat ID: AI + manual validation



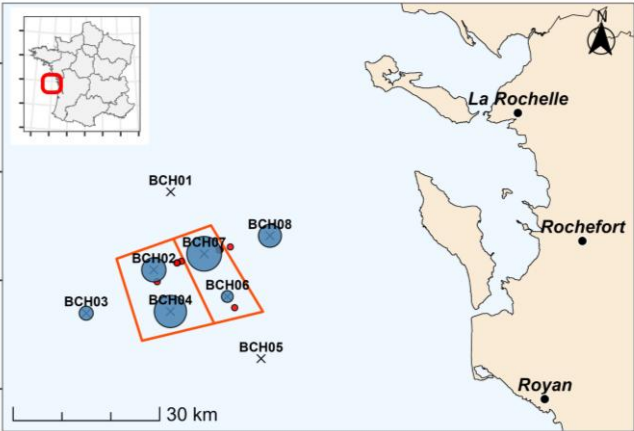
Balloon deployment during field campaign

• **Results from the first year of surveys:**

Thirteen acoustic monitoring campaigns were carried out, revealing the presence of bats and migratory birds, mainly during post-nuptial migration.

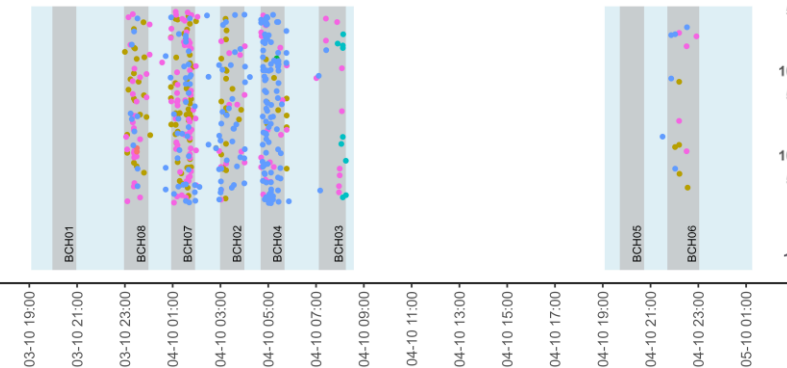
→ **Passerine activity** was more intense, with 1,756 detections across 13 species, mostly concentrated between 01:00 and 04:00, reaching up to 60 contacts per hour. These observations highlight a multistrata use of the air column during nocturnal migration. Notably, species composition at sea does not differ from that observed on land, which suggests that the data from coastal and at-sea monitoring are consistent. For example, during the campaign conducted from October 3 to 5, 2024, intense bird nocturnal activity was recorded, illustrating typical patterns observed throughout the postnuptial migration (Graphs A, B and C) :

A) Total number of detections per station

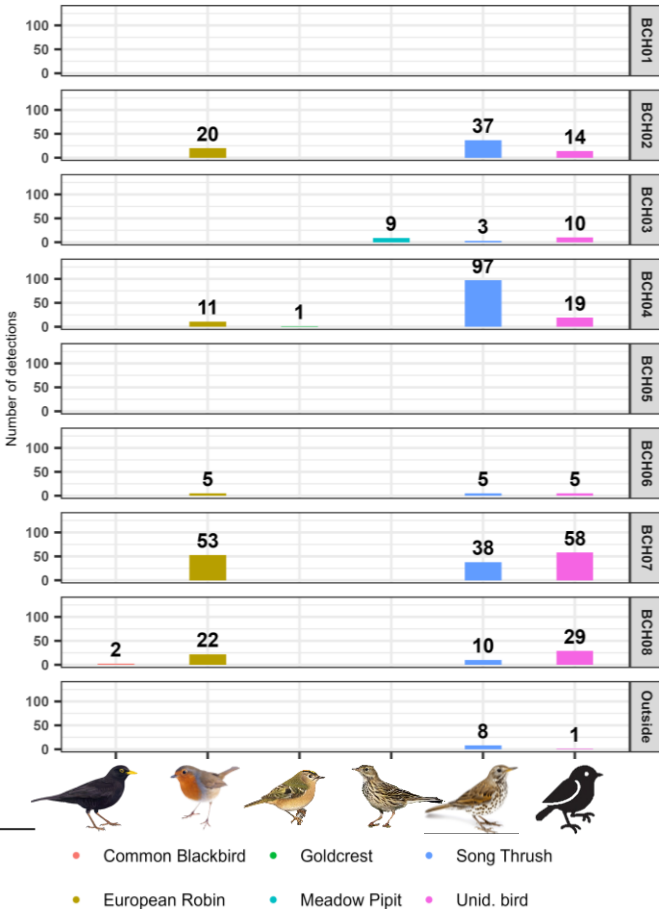


B) Contact activity over time

Shaded areas: recording period when the balloon is in the air
Blue areas: recording period on the deck of the boat

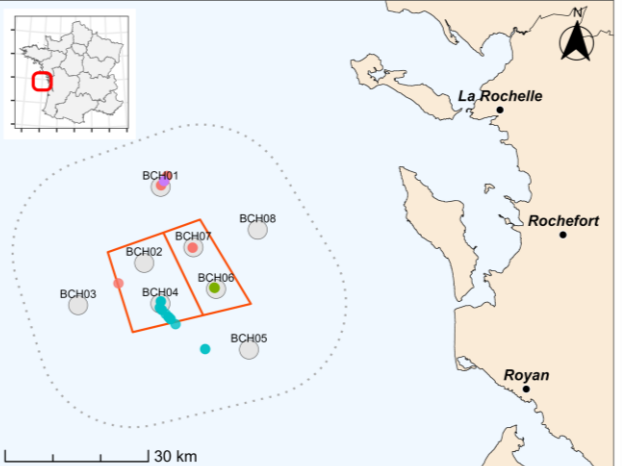


C) Number of detections per station and species



→ **Bat activity** totaled 50 detections (2 identified species → Leisler's bat (n=8) and Common pipistrelle (n=2) ; and 2 species groups → "Kuhl pipistrelle and/or Nathusius pipistrelle" (n=26) and "Leisler's bat and/or Common noctule and/or Serotine bat" (n=14) - Graph D), with most activity occurring between 21:00 and 23:00, essentially during the postnuptial migration too. Nearly 98% of sequences indicated transit behavior.

D) Total detections of Bats - From march 2024 to november 2024



Species: ● Eptesicus/Nyctalus sp. ● Nyctalus leisleri ● Pipistrellus nathusii/kuhlri ● Pipistrellus pipistrellus

• **Conclusion:**

These first results confirm that the study area lies within the East Atlantic migration flyway. Several species previously undetected by other monitoring methods (e.g., boat-based surveys, aerial counts, eDNA analyses) were recorded, highlighting the added value of this approach. Observations also emphasize the potential collision risk for both birds and bats due to their flight altitudes. Coupling these findings with radar and GPS-based studies, such as those conducted within the *Migratlane* project, would provide a more comprehensive understanding. Comparing results with a second year of monitoring will be essential to assess temporal, spatial, and species-specific variability.



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