Éoliennes flottantes d'Occitanie

Webinar OCEaN

Sustainable Seas Safer Skies

Insights from a Developer

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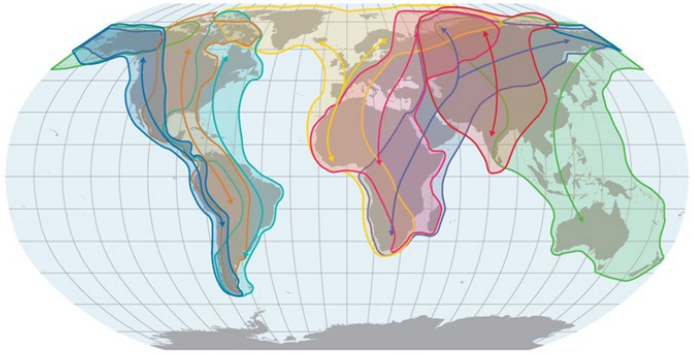
OW OCEAN WINDS

BANQUE des TERRITOIRES

1. Introduction

- Develops, finances, builds and operates offshore wind farms worldwide (18,8GW across 8 countries)
- Convinced that offshore wind is an essential element of the global energy transition



AGENDA

Context of the OWF development

RETEX from outside Mediterranean Sea

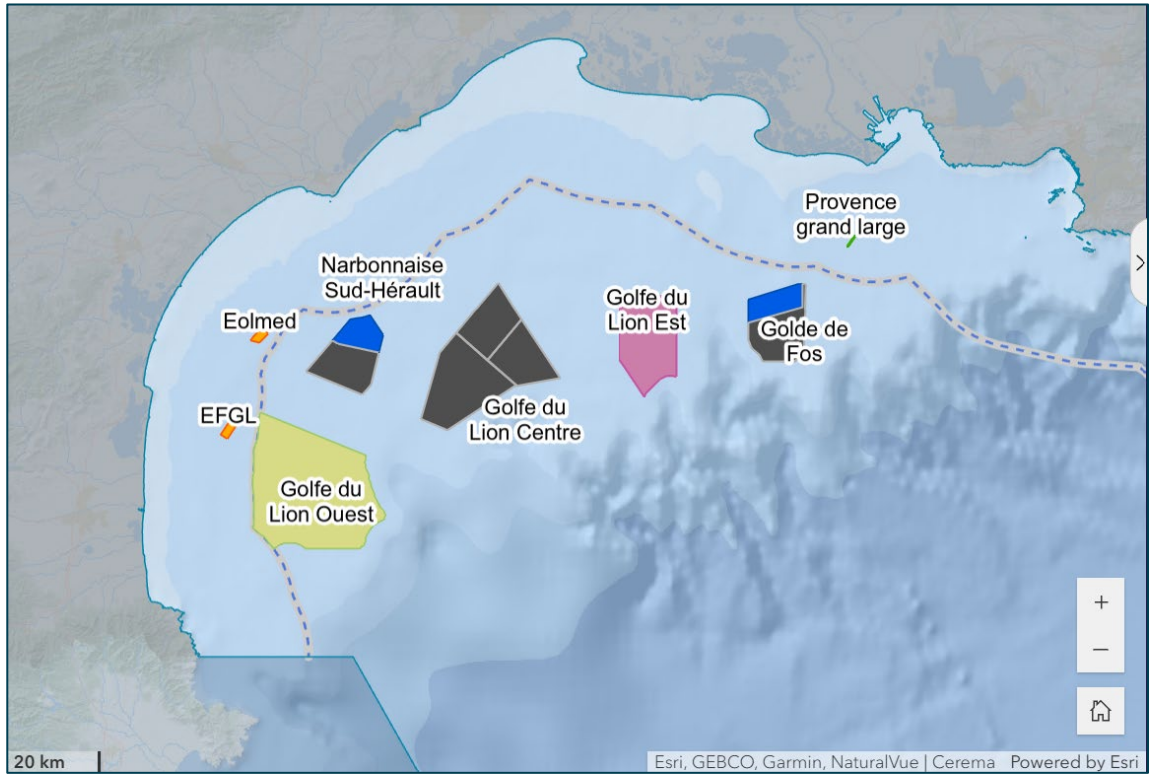
EFGL & EFLO actions plans

https://datazone.birdlife.org/articles/the-flyways-concept-can-help-coordinate-global-efforts-to-conserve-migratory-birds

2. Context – OWF in the Mediterranean Sea

Les éoliennes flottantes du golfe du Lion

Éoliennes flottantes d'Occitanie



https://www.eoliennesenmer.fr/facades-maritimes-en-france/facade-mediterranee

The definition of geographical areas is a long and complex process aimed at identifying areas with fewer constraints.

1. The **State first defines suitable areas** for offshore wind farms as part of spatial maritime planning.

2. The National Commission for Public Debate (CNDP) organizes a **public consultation** on the offshore wind project.

3. The **government** reviews the consultation results and **publishes its decisions**.

4. Then **government launches a tender process** to select the developer of the offshore wind farm.

2. Context – Environmental obligations for the developer

Once selected, the successful bidder must still obtain an environmental authorization prior to the construction

5. The developer engages an **environmental consultancy and several experts** to prepare the Environmental Impact Assessment (EIA).

6. EIA proposes a **list of environmental measures** (avoidance, reduction, compensation and monitoring) to address potential environmental impacts during construction and operation.

7. **Environmental authority** assesses the application and **prescribes a final list** of measures.

8. **These obligations are additional to our tender commitments**.

Examples of avifauna measures

Mitigation measures

- Optimized wind turbine layout
- Minimization of disturbances during construction
- Increased air gap

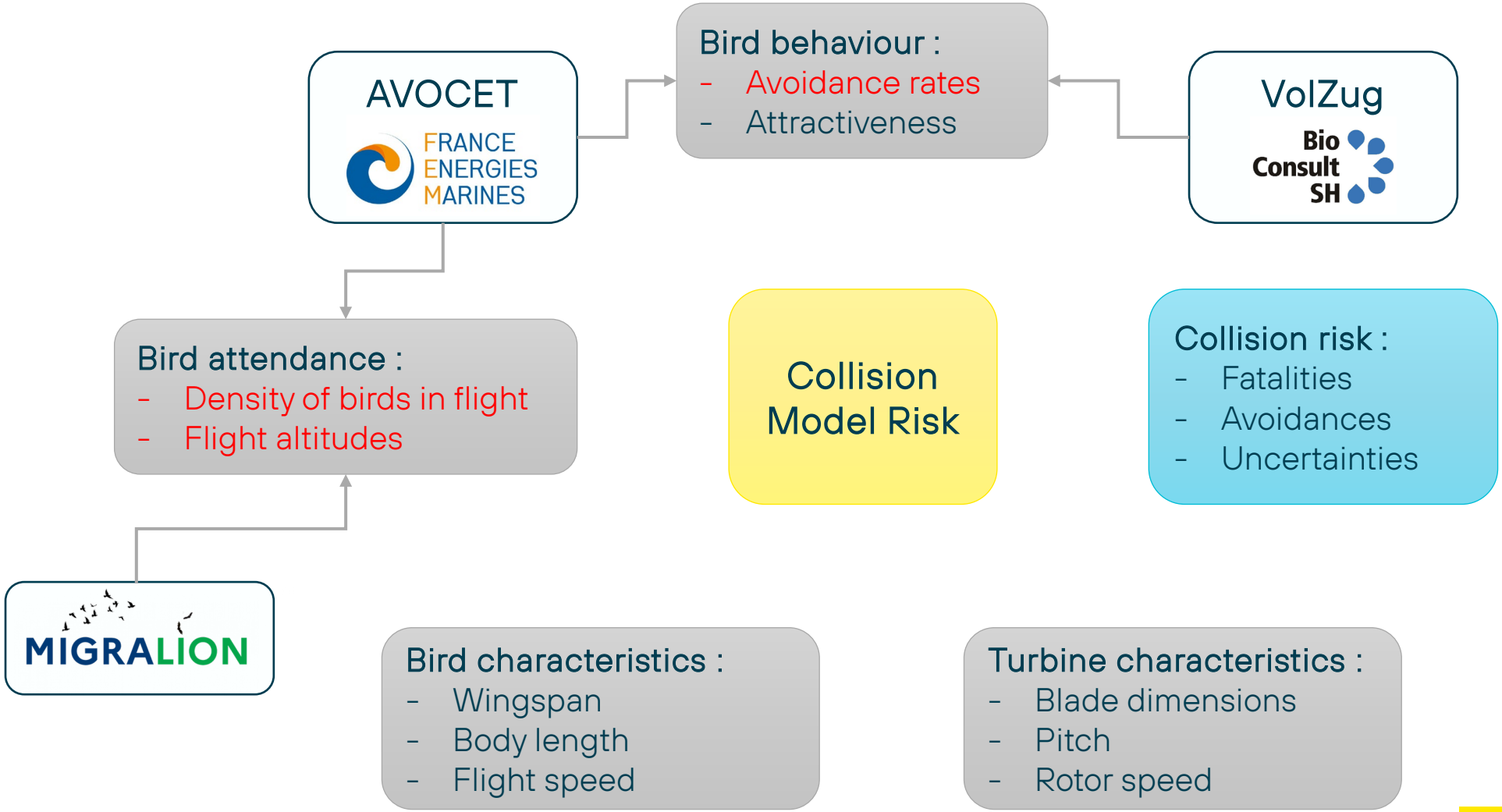
Compensation measures

- Habitat restoration and conservation actions
- Protection of sensitive species
- Knowledge enhancement

Monitoring and adaptation

- Monitoring using radar and camera systems
- GPS tracking
- Adaptive management based on monitoring results

2. Context – Based on impact analysis and collision risk



3. RETEX from outside Mediterranean Sea

Terrestrial Migratory : VolZug Project – Bio Consult SH

- Wind farm of 5 turbines located 2 km from the shore in Germany
- 2 prenuptial periods & 2 postnuptial periods in 2023-2024
- Over the 23 species identified, 18 identified in Migralion (lot 5)

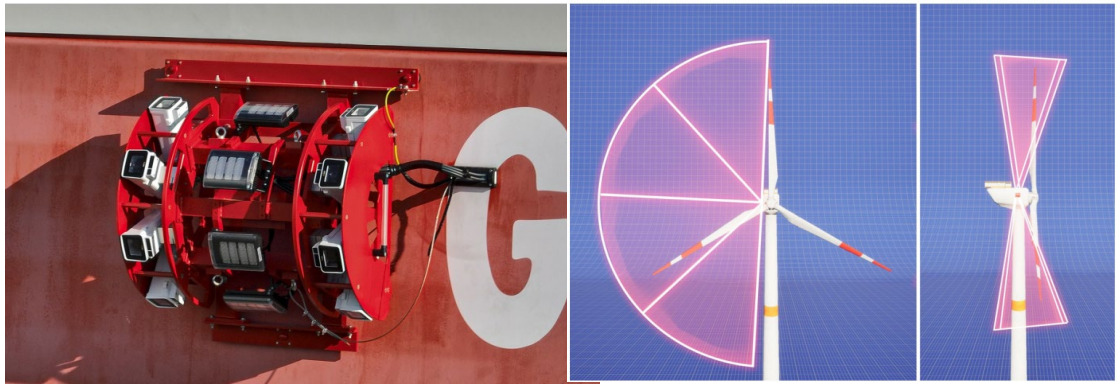
1. Avoidance rate of 99,83% for local migratory birds

→ Trajectory adjustments before entering the rotor swept zone

→ Overall low collision risk for migrating birds

2. Absence of correlation between migration traffic rates and rotor transit rates

→ Migration peaks do not automatically translate into an increased risk of collision



Marine Birds : Kincardine - Wildfowl and Wetlands Trust

- Floating wind farm of 5 turbines located 15 km offshore in Scotland
- 950 days of monitoring in 2022-2024, more than 17 000 bird detections
- 1 018 flights selected for further analysis (significant risks of collision)
  175 high risk flights detected for the kittiwake

1. Collision rates significantly lower than predicted by models

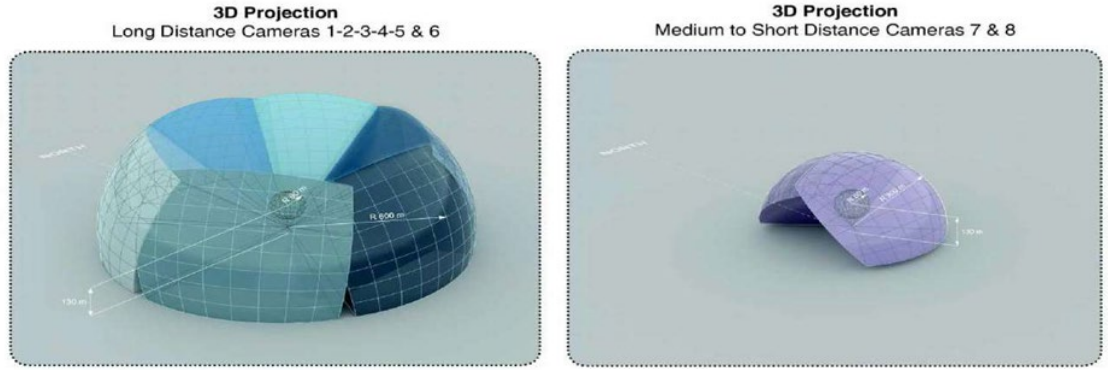
→ CRM : 22,5 per breeding season, 5 for the rest of the year

→ 1 collision reported

2. Blade avoidance behavior identified for Kittiwakes

→ 65 flights cross the RSZ

→ 15 flights with a sudden change of direction



The-collision-risk-of-migrating-birds-at-wind-farms.pdf

https://tethys.pnnl.gov/wind-project-sites/kincardine-offshore-wind-farm

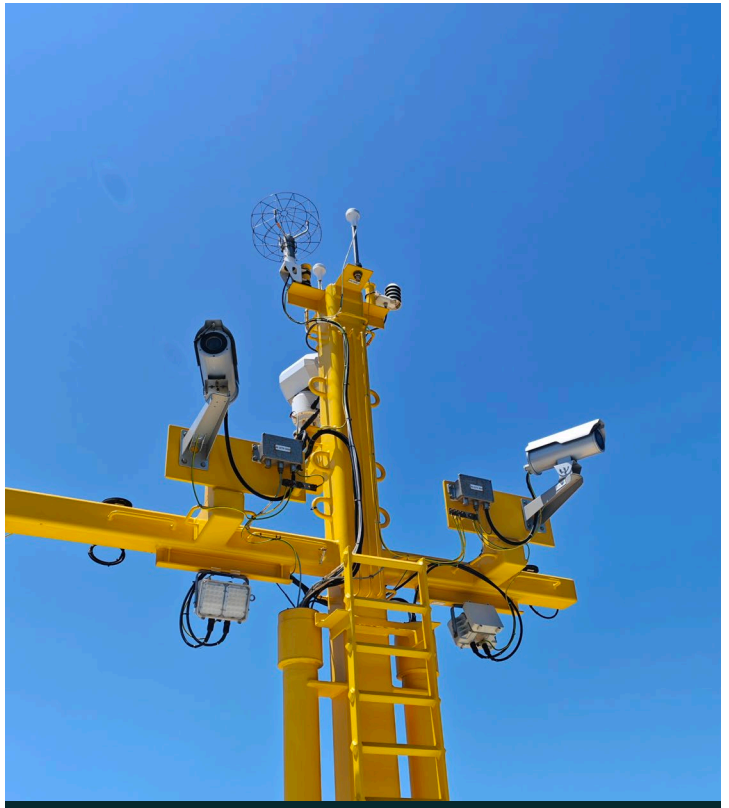
4. EFGL – Eoliennes Flottantes du Golfe du Lion

RADAR

1 year monitoring / displacement analysis

VIDEO / ROTOR

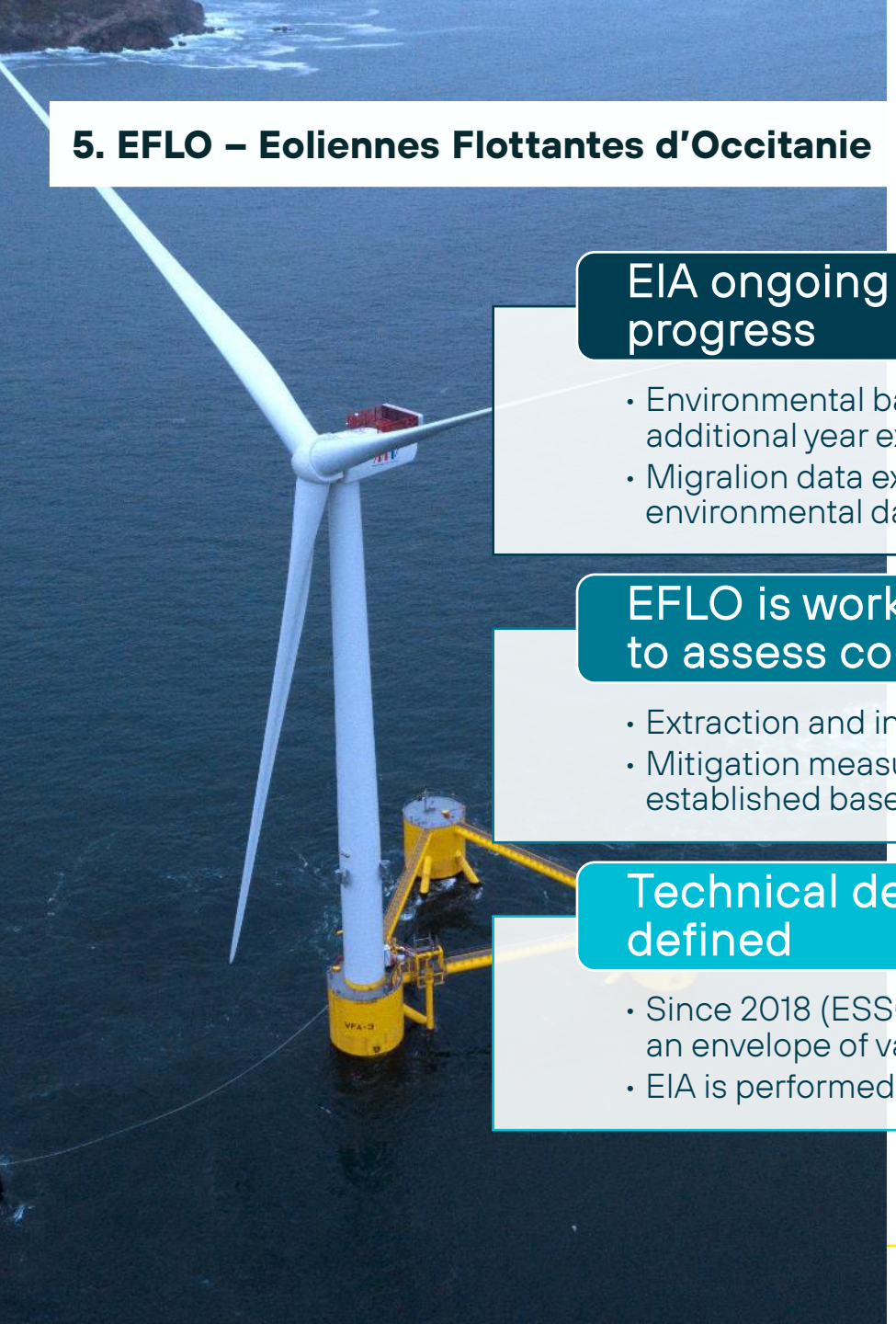
3 year monitoring / collision analysis



VIDEO / FLOATER

2 year monitoring / perching effect analysis

https://www.eoliennesenmer.fr/facades-maritimes-en-france/facade-mediterranee/leucate#toc-principales-etudes-environnementales-sur-la-zone



5. EFLO – Eoliennes Flottantes d'Occitanie

Éoliennes flottantes d'Occitanie

EIA ongoing for one year, data collection still in progress

- Environmental baseline study is provided by Government. 1 year of data available; one additional year expected.
- Migralion data excluded of this set of data and not directly compatible with the baseline environmental data unsuitable for direct integration into the environmental baseline

EFLO is working with Biotope and Natural Power to assess collision risk through modelling

- Extraction and integration of Migralion data to the CRM intended in the EIA
- Mitigation measures will be defined later, once the environmental sensitivity level has been established based on two years of baseline data and the impact level has been assessed.

Technical design of the project remains to be defined

- Since 2018 (ESSOC act), developers can request an environmental authorization based on an envelope of variable technical characteristics (Rochdale approach)
- EIA is performed on the worst case scenario (number of turbines, their size, floater type, etc.)

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In a nutshell...

Monitoring: Equipping wind farms and coastal areas with next-generation instruments (3D radar, real time video) to analyse bird interactions.

Analysis: Acquiring key data (flight altitude, MTR, behaviours, collisions, etc.) to improve risk modelling and optimize mitigation measures.

Capitalizing on Global Data: Combining local data with international feedback (e.g., North Sea experience) to better exploit existing and newly acquired knowledge.

Further results expected : Bird adaptation and OWF avoidance energetic cost for example.

OW is partnering with scientists to build a shared empirical knowledge base by actively funding European research (BIRDSAFE, AVOCET).

Thanks for your attention !

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