



Cumulative impacts of OWFs and environmental monitoring – experience of the Polish Party on the example of FEW Baltic II

12th Baltic Sea Subregional Meeting

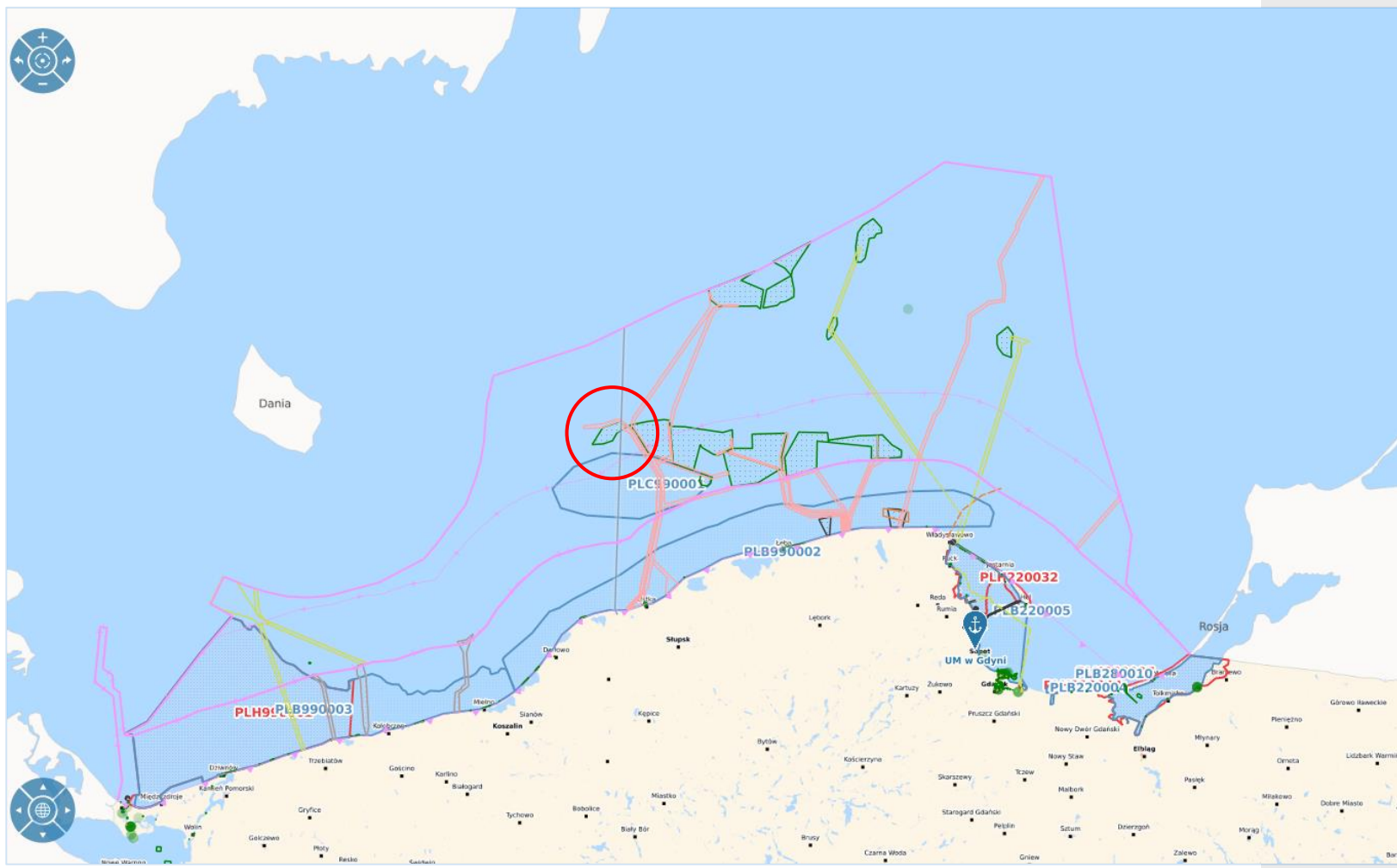
Zuzanna Majewska

General Directorate for Environmental Protection



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FEW BALTIC II - information

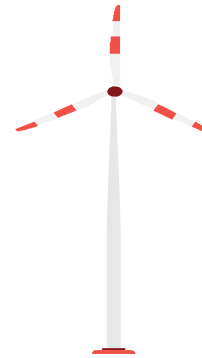


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FEW BALTIC II - information

- max. 350 MW capacity
- 44 turbines
- max. 300 m total height
- max. 250 m rotor diameter;
- area of approx. 27,60 km²



FEW Baltic II offshore wind farm includes an offshore transformer station, internal electricity and telecommunication network with inter array cables between individual turbines and transformer station of max. length up to 60 km.

Cumulative impact assessment - assumptions

According to Polish law (Article 66 of the EIA Act), the cumulative impact assessment should include:

Implemented projects

Planned projects with EIA decision

Located in the area of impact of planned activity



Cumulative impact assessment - assumptions

In case of FEW Baltic II, cumulative impact assessment on migratory birds has been extended.

Implemented projects

Planned projects with EIA decision

Planned projects with pending EIA decision

Projects at early stage of investment process

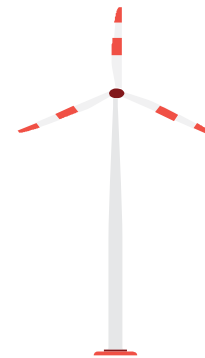
Located in the area of impact of planned activity



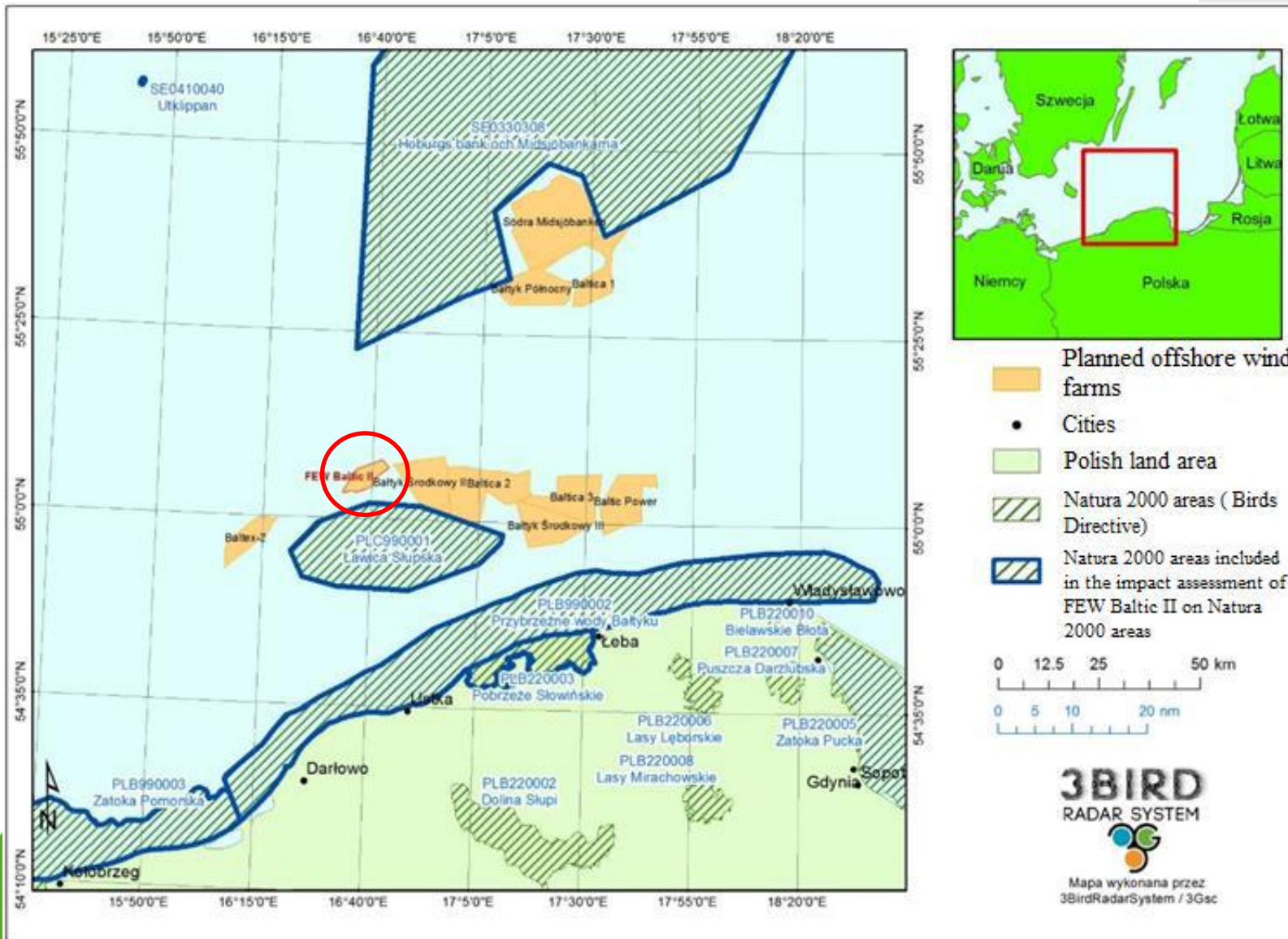
Cumulative impact assessment - assumptions

The cumulative impact assessment of the FEW Baltic II on migrating avifauna was carried out by considering 9 other OWFs planned in the close vicinity of this project: Södra Midsjöbanken, Bałtyk Północny, Bałtyk II, Bałtyk III, Baltic Power, Baltica 1, Baltica 2, Baltica 3, Baltex-2.

- 4 OWFs with EIA decision issued
- 4 OWFs with EIA decision pending
- 1 OWF at early stage of planning



Cumulative impact assessment - assumptions



Impact on migratory avifauna

OWFs are located on the migration route between important breeding and wintering areas in Natura 2000 sites:

- PLC990001 Słupsk Bank;
- PLB990002 Coastal Waters of the Baltic Sea;
- PLB990003 Pomeranian Bay;
- SE0330308 Hoburgs Bank och Midsjöbankara.

Special protection areas (SPAs) designed to protect populations **long-tailed duck, razorbill, velvet scoter and common scoter**

Barrier effect and collision risk

Impact of barrier effect:

- The need to modify migration routes, which generates an increase in energy expenditure – impact on condition of birds, degree of survival, breeding success;
- The avoidance of planned OWFs complex during spring and autumn migrations and winter local passages by species protected under the Natura 2000.

Impact of collision with rotor blades:

- Increased risk of mortality during spring and autumn migration.

Environmental monitoring of migratory avifauna

Monitoring of migratory avifauna – spring and autumn migrations
(March – May 2017, July – November 2017):

- 3Bird Radar System
- crouse observation
- night acoustic recordings

Results:

- 42 196 birds observed
- 106 species
- 18 species particularly threatened – Annex 1 of the Bird Directive
- 15 species of the **HELCOM Red List**

Cumulative barrier effect

On the basis of monitoring results the cumulative barrier effect was modelled. The model includes:

- forecast of flight route elongation
- energy losses from bypassing the OWFs.

Results:

- increase in energy expenditure – **not reach the 10% threshold** in relation to the effort spent on migration

Cumulative collision risk

The model includes:

- bird density/migration rates
- migration routes
- night activity
- number and size of wind turbine
- rotor speed
- operating time

Results:

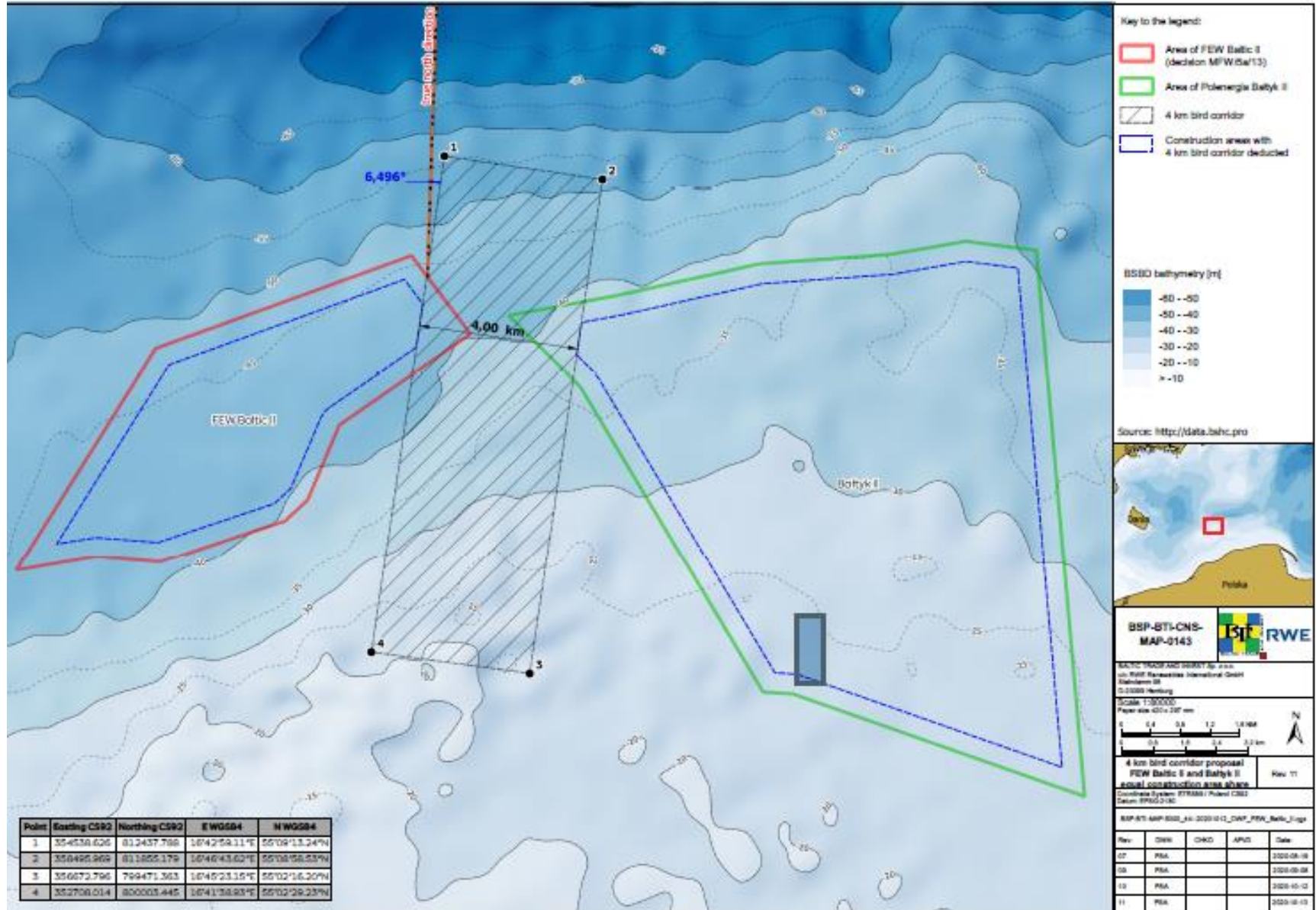
- Cumulative collisions significance from **small** (small birds migrating at night) to **moderate** (long-tailed duck, common scoter, little gull).

Mitigation measures

Mitigation measures in order to minimize the impact of barrier effect and collision risk:

- leaving **4 km migratory corridor** between FEW Baltic II and neighbouring OWF for enabling passage of birds and reducing energy losses

Mitigation measures



Mitigation measures

Mitigation measures in order to minimize the impact of collision risk:

- Using a temporary shutdown system for wind turbines in critical periods of intense migration;
- Maintaining a 20 m zone between the rotor blades and water surface, as the 92% of flight during spring migration took place up to 20 m;
- Painting one of the three blade rotor blades on black to minimize motion blur.

Post-project monitoring

Recommendation to conduct **4 years monitoring** during spring and summer migrations of birds in two modules:

- radar surveys during seasonal migrations, supported by visual observation;
- reaserch regarding the level of mortality of passing birds, as a result of collisions with operating wind turbines.

Conclusions

- To understand the overall biodiversity impacts of OWFs, **cumulative impacts must be taken into account.**
- It is possible to minimize negative impact of OWF project. Poorly designed wind farms can have negative direct, indirect or **cumulative impact** on biodiversity.
- It would be easier to estimate cumulative impacts if the environmental impact assessments in the various countries were performed with **comparable endpoints.**
- Individual OWF projects are subject to systemised assessment of impacts on marine ecosystems, but evaluations on a **larger spatial scale and long-term assessments of OWF projects are necessary to provide a knowledge base for strategic planning**

Thank you for your attention !

