

Wozep

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Wozep (2016-2023) is an assignment of the Ministry of Economical Affairs and Climate Policy



Ministry of Infrastructure and the Environment

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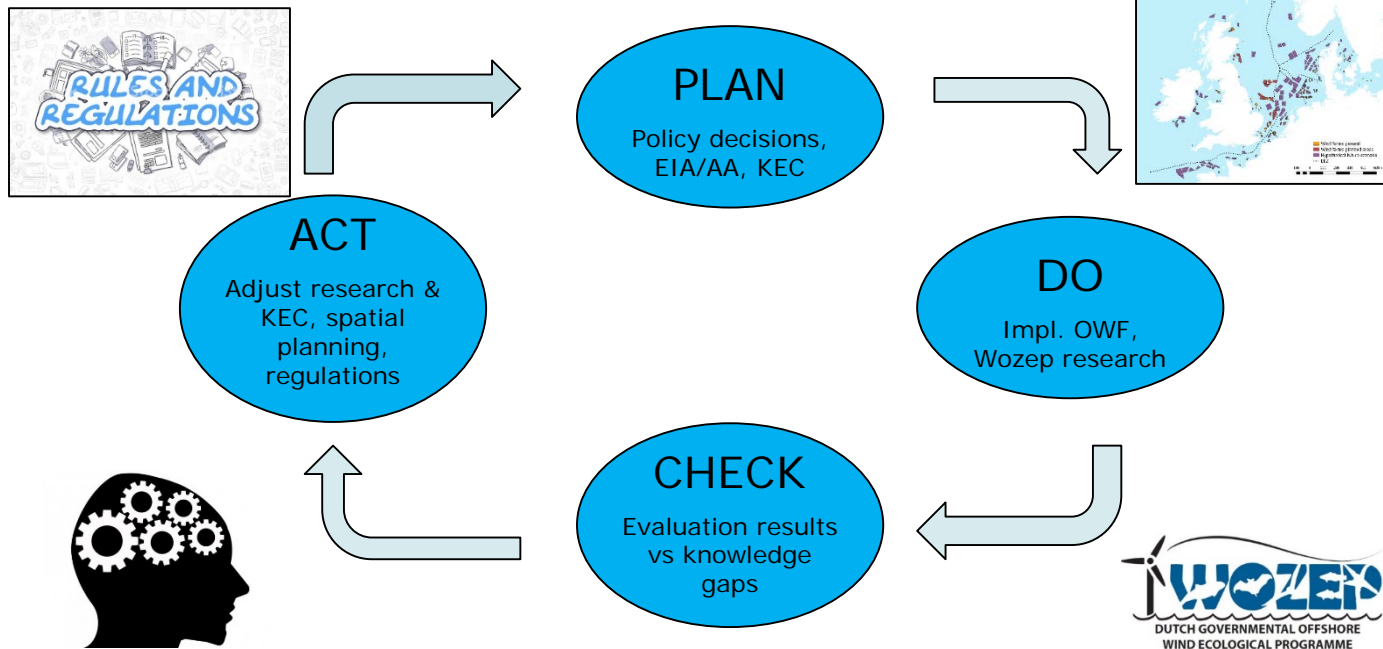


Why research on ecological effects

- During environmental impact assessment (**EIA**) ecological effects described with state of the art knowledge
- Obligation to increase knowledge on impacts
- Before 2016: research by wind farm owners
- After 2016: central government research programme Wozep
- Wind farm owners only site specific issues; most knowledge question are general
- Cumulative effect assessment OWF (KEC instrument)



Wozep as part of the plan-do-check-act

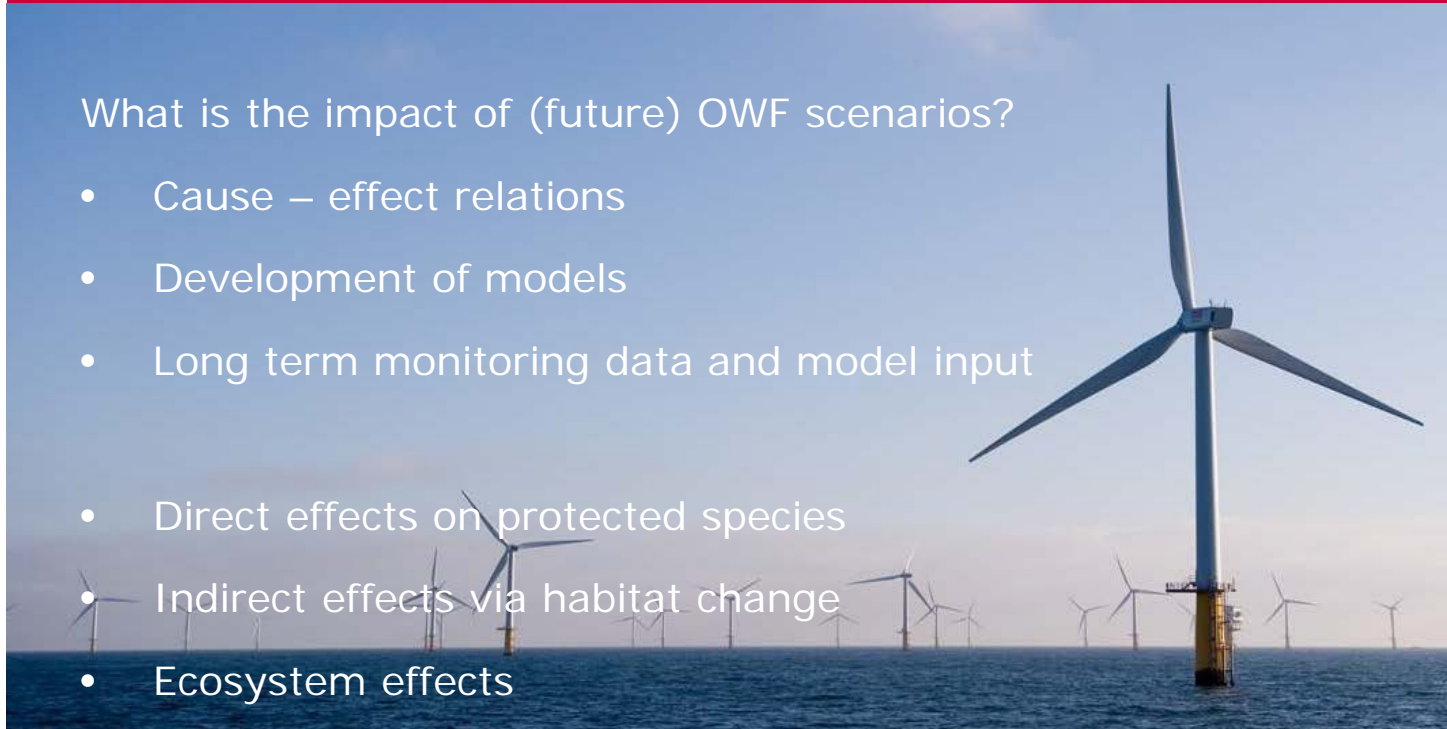




Research strategy Wozep

What is the impact of (future) OWF scenarios?

- Cause – effect relations
- Development of models
- Long term monitoring data and model input
- Direct effects on protected species
- Indirect effects via habitat change
- Ecosystem effects





Ecosystem
-effects

Knowledge gaps impact OWF



Above water: collision/displacement



Under water: noise, habitat, EMF

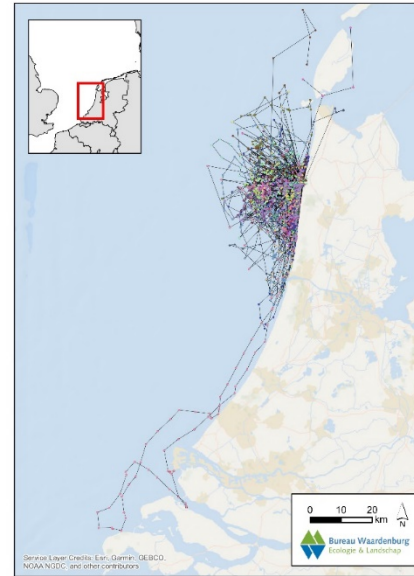




Results ecological effects



Above water: birds collision /displacement

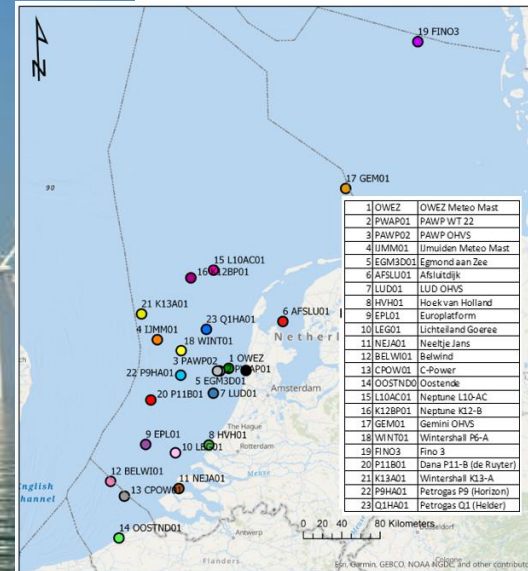




Knowledge gaps ecological effects OWF



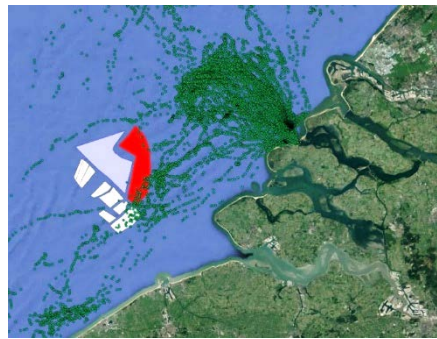
Above water: bat collision



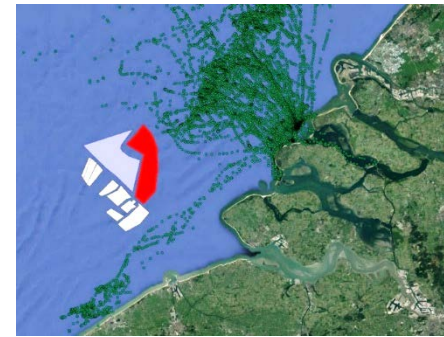
S. Lagerveld, WMR



Knowledge gaps ecological effects OWF



before start*



after start

In water: underwater noise – marine mammals

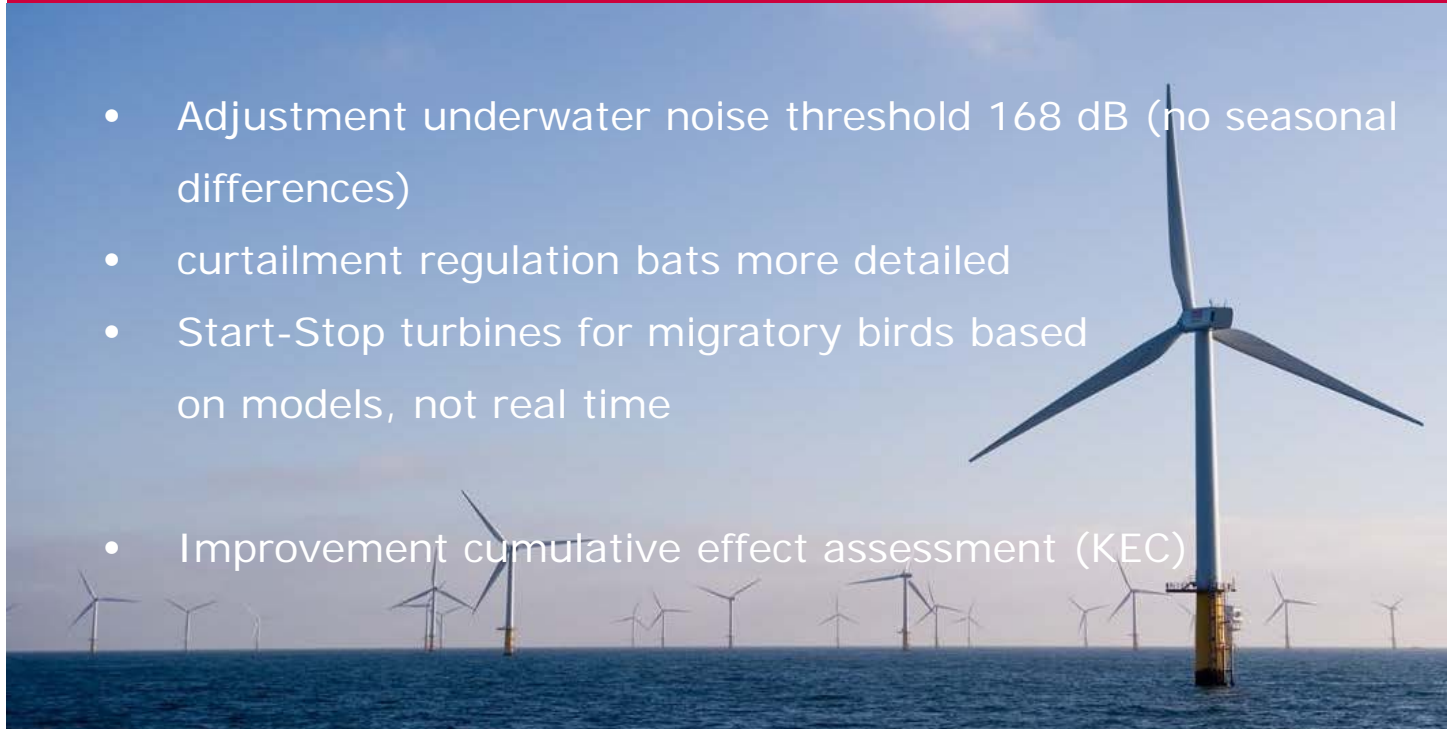


* S. Brasseur; WMR



Implementation Wozep results – HKW

- Adjustment underwater noise threshold 168 dB (no seasonal differences)
- curtailment regulation bats more detailed
- Start-Stop turbines for migratory birds based on models, not real time
- Improvement cumulative effect assessment (KEC)





More information on Wozep:

- Noordzeeloket: <https://www.noordzeeloket.nl/functionies-gebruik/windenergie-zee/ecologie/wind-zee-ecologisch/>
- Windopzee.nl: <https://windopzee.nl/onderwerpen-0/effect-op/natuur/>
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