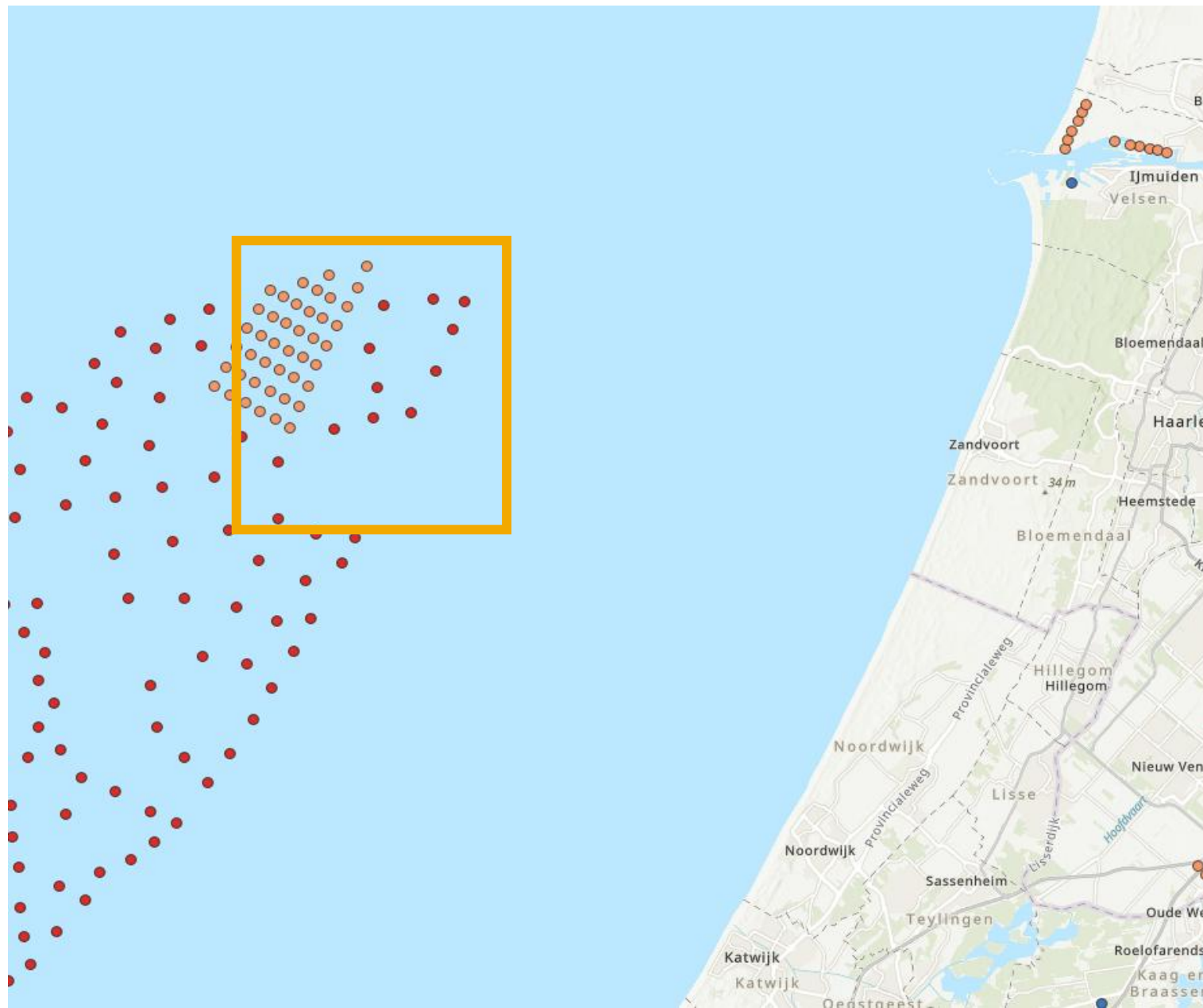


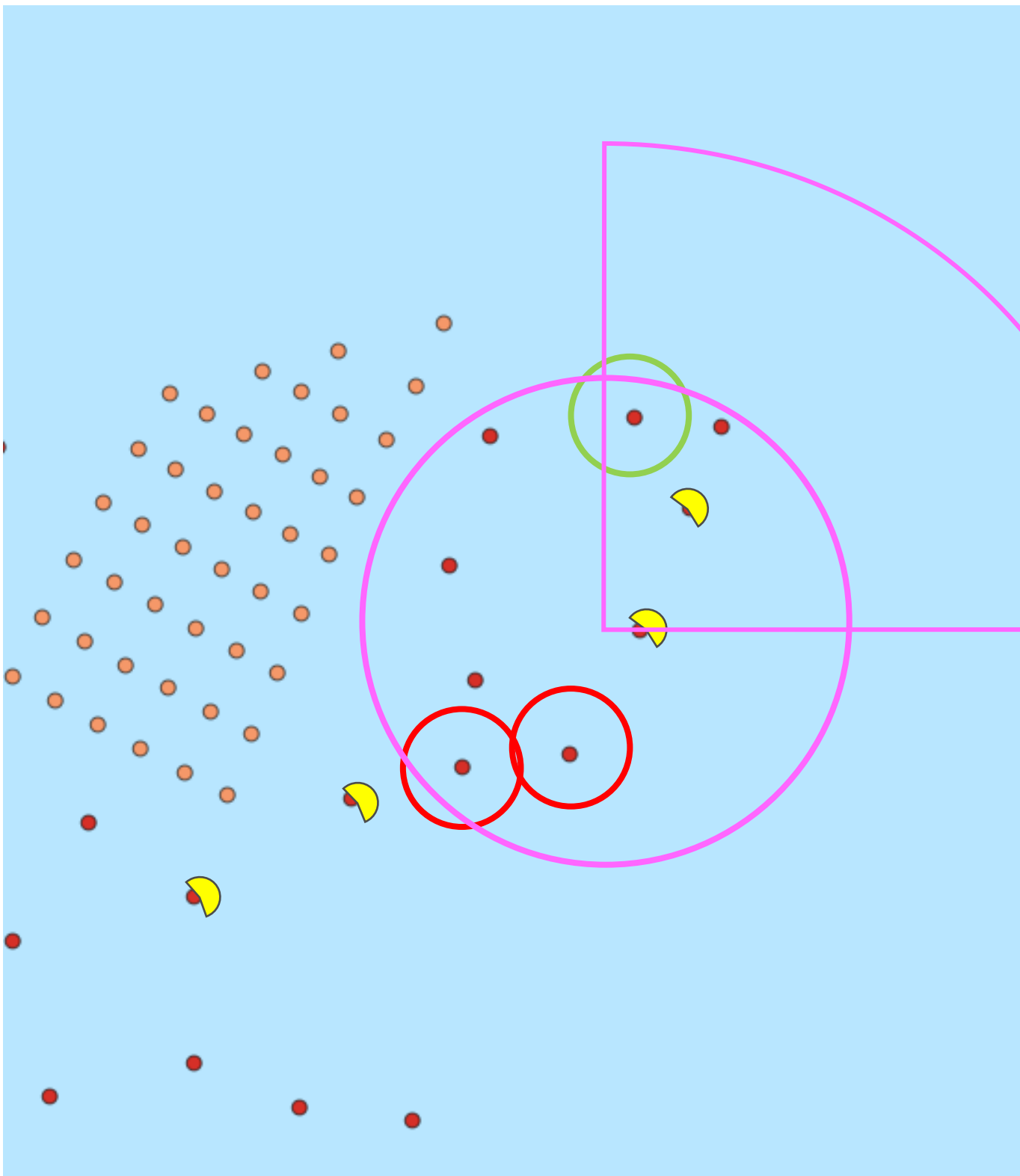
Improving the effectiveness of the start-stop procedure in combination with Multi GW scale Dutch offshore wind energy



Measurement locations of BIRDSAFE:
Gemini in the North of the Netherlands and
Hollandse Kust Zuid on the West Coast of
the Netherlands. (Bird autumn migration
direction for illustrative purposes)



Focus location of measurements in
Hollandse Kust Zuid (HKZ). Birds expected
to enter the wind farm from the Northeast



Rough location of sensors in HKZ:
• 2 bird radars (magenta)
• 3 turbines with camera-based collision
systems (green and red)
• 4 turbines with camera-based flux
measurements (yellow)
Total of 70 thermal cameras (including
reference system near radars)

- Goal:
 - Increase knowledge of bird migration behaviour in and around wind farms
 - Improve models to evaluate effects of mitigation
 - Improve curtailment strategies for current and future wind farms
- Extensive measurement campaign
 - Gemini (bird radar)
 - Hollandse Kust Zuid (70 cameras and 2 bird radars)
- Focus on Autumn Migration
- 2 measurement periods in autumn 2025 and autumn 2026
- Project within MOOI call 2024
- Total Budget 3,8 million Euro
- Start 1st of March 2025
- Runtime: bit less than 3 years

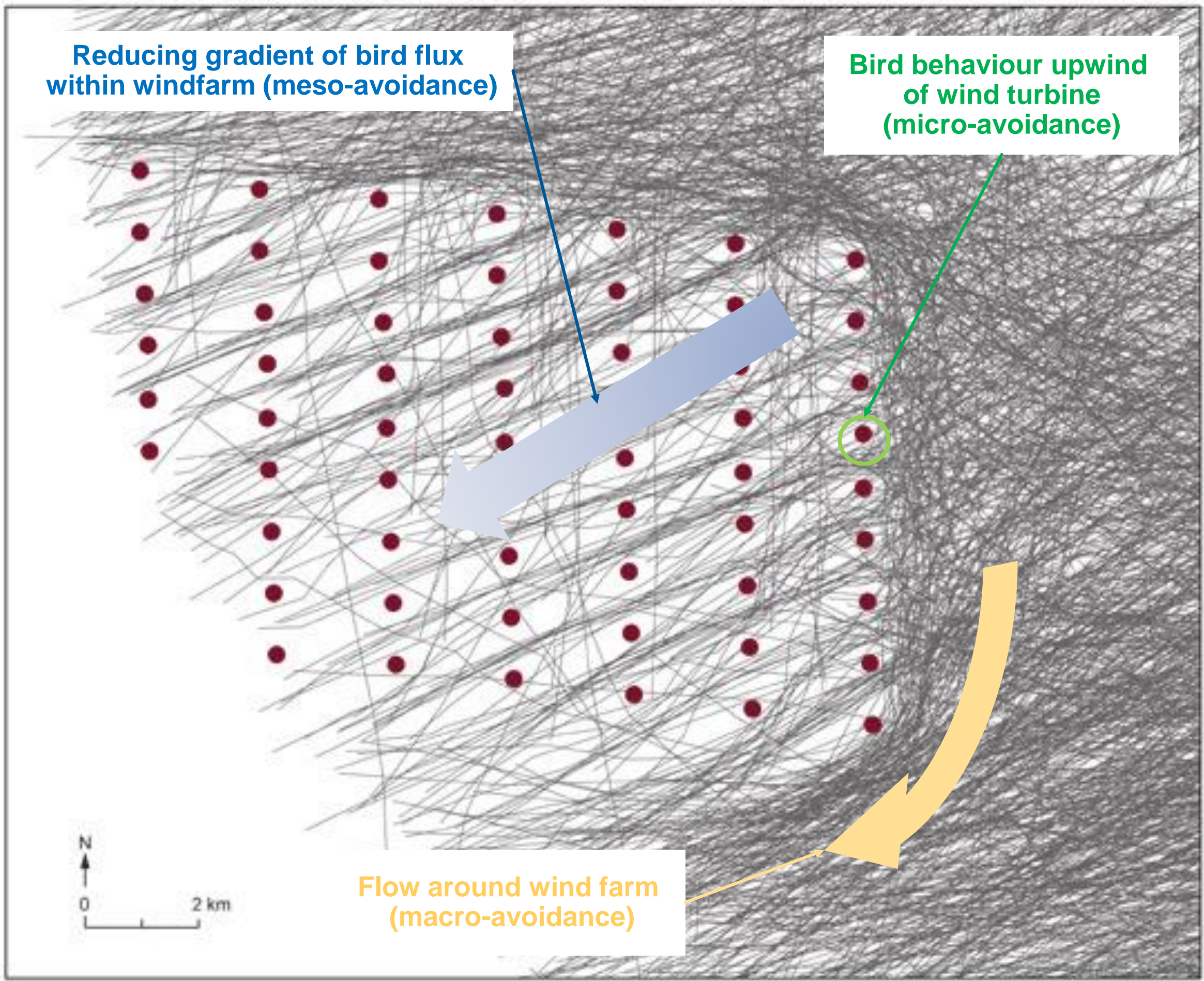
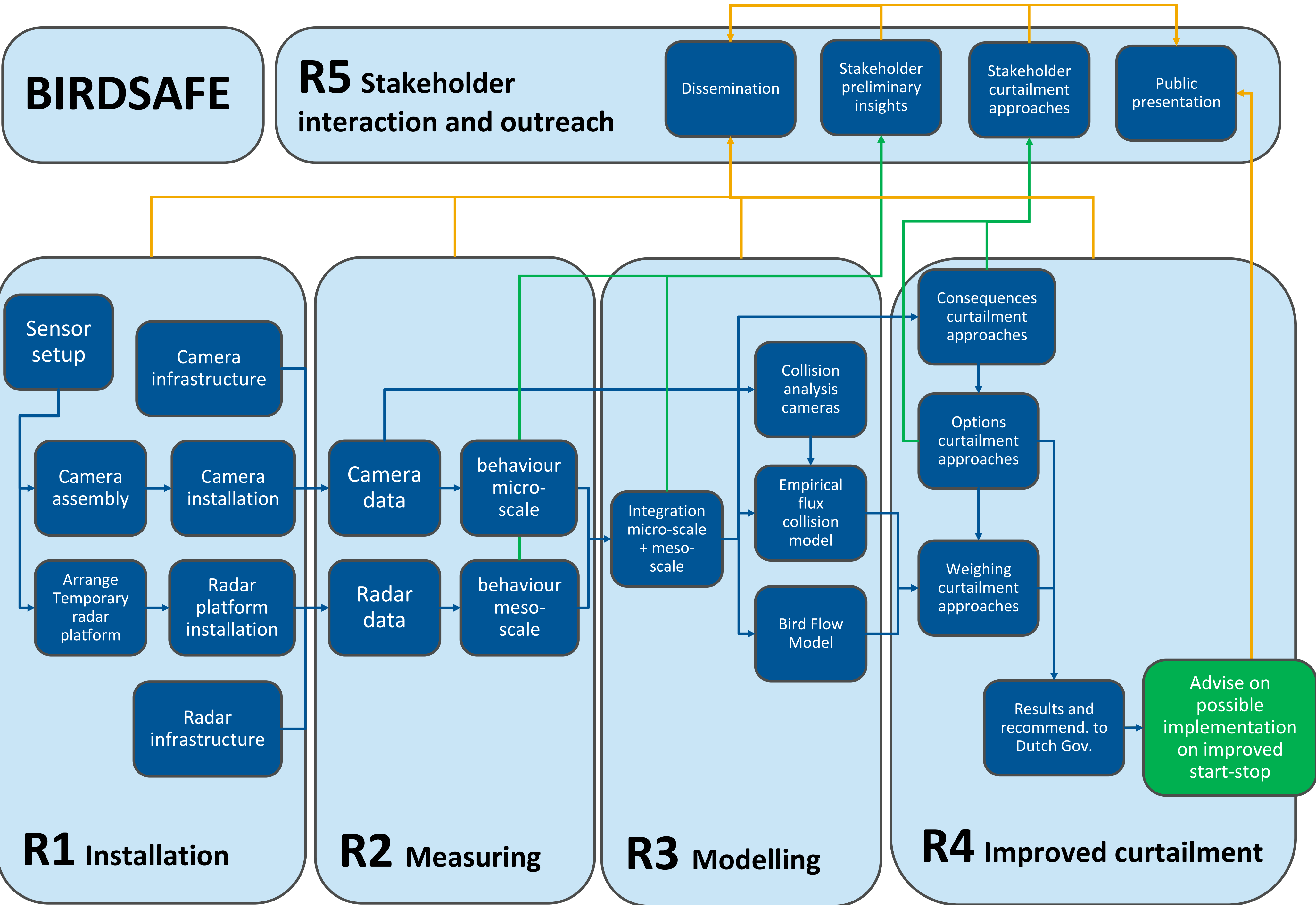


Illustration of bird movement through an offshore wind farm, macro,
meso and micro avoidance (adapted from Desholm 2005)

