

WinMon.BE

Monitoring and research
of environmental impacts
of offshore wind farms
(in Belgian waters)

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natural
sciences
.be

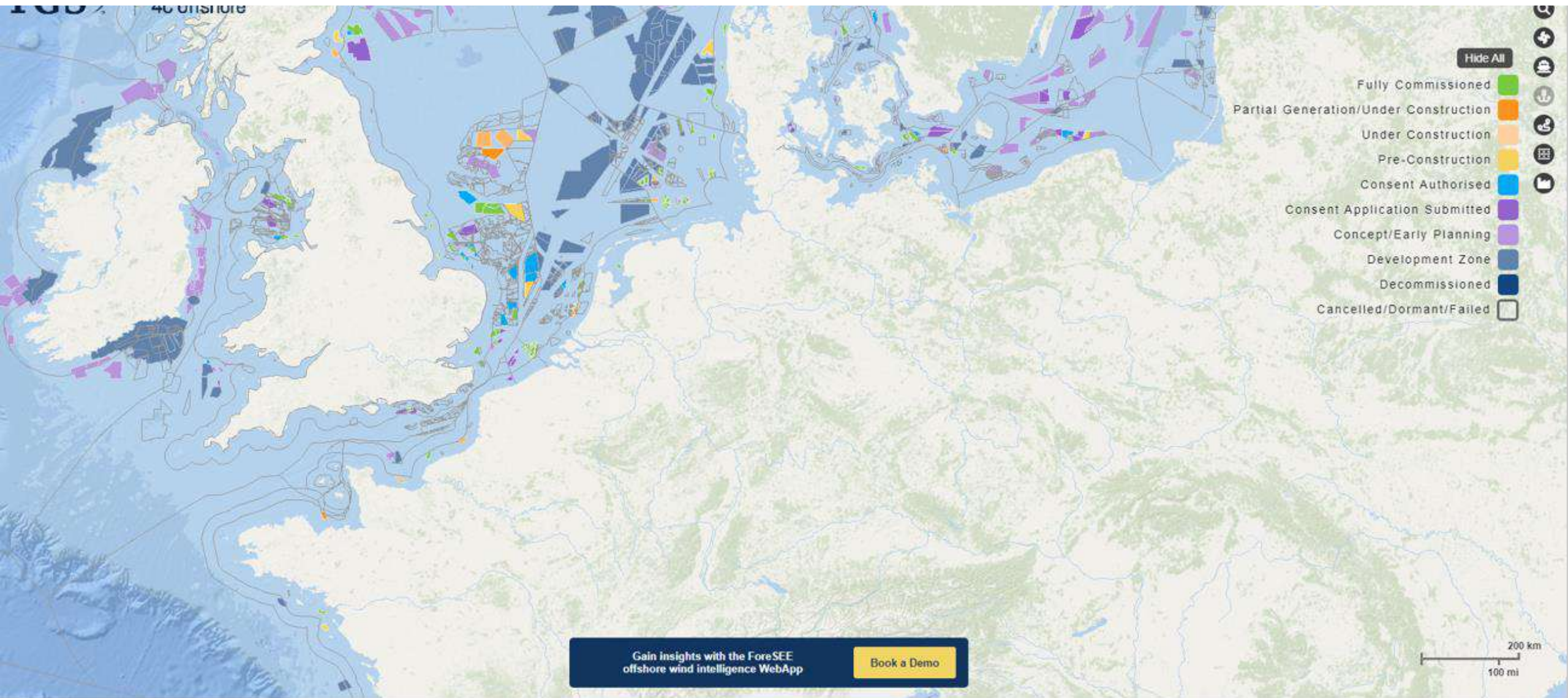


- This is not about offshore wind farm impacts
- This about the WinMon.BE approach
 - Monitoring and research focus and history
 - Funding scheme and management
 - Advantages - observing and understanding, long-term observation, adaptive management, public data and knowledge, international collaboration and coordination

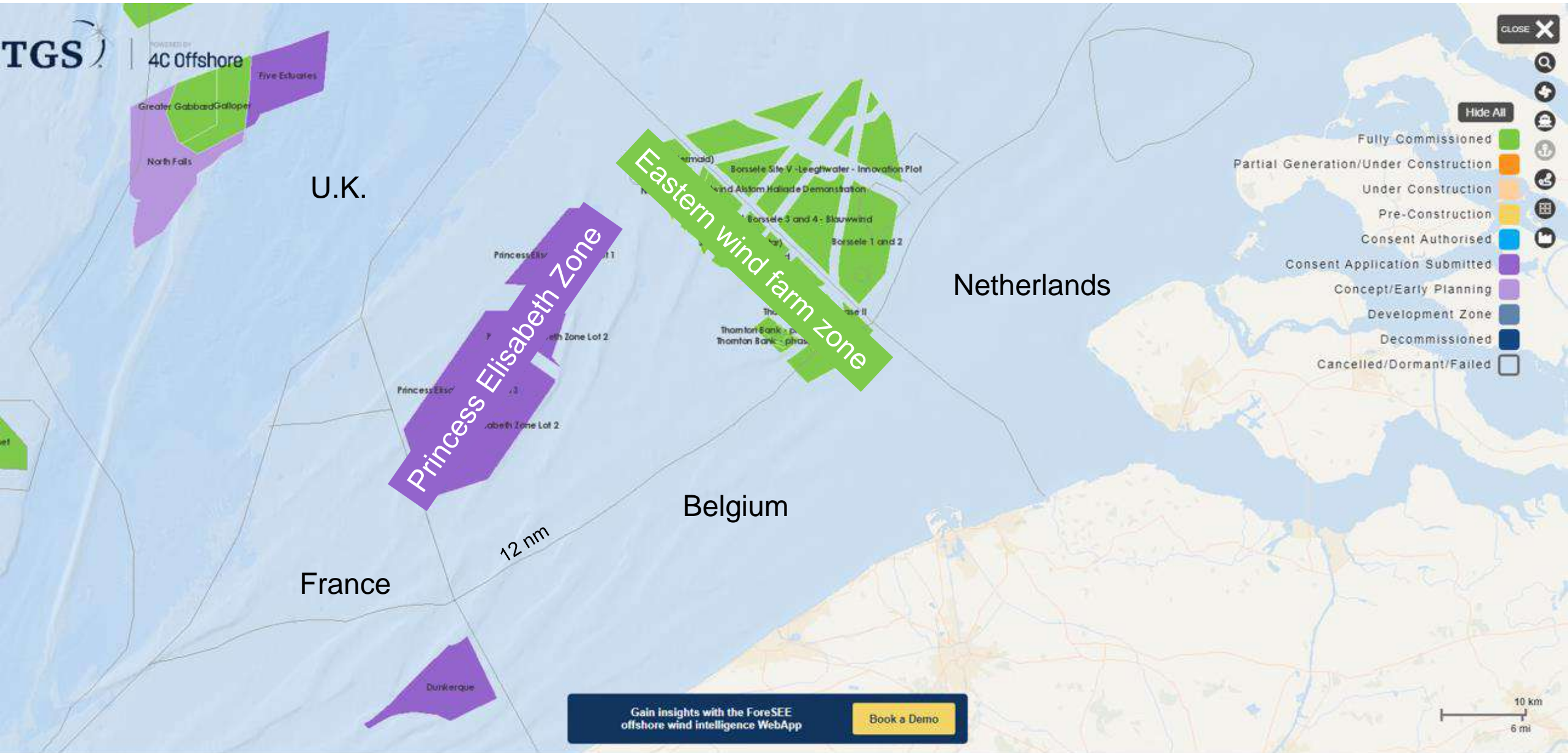
...with illustrative research findings 😊

Offshore wind farms in Europe

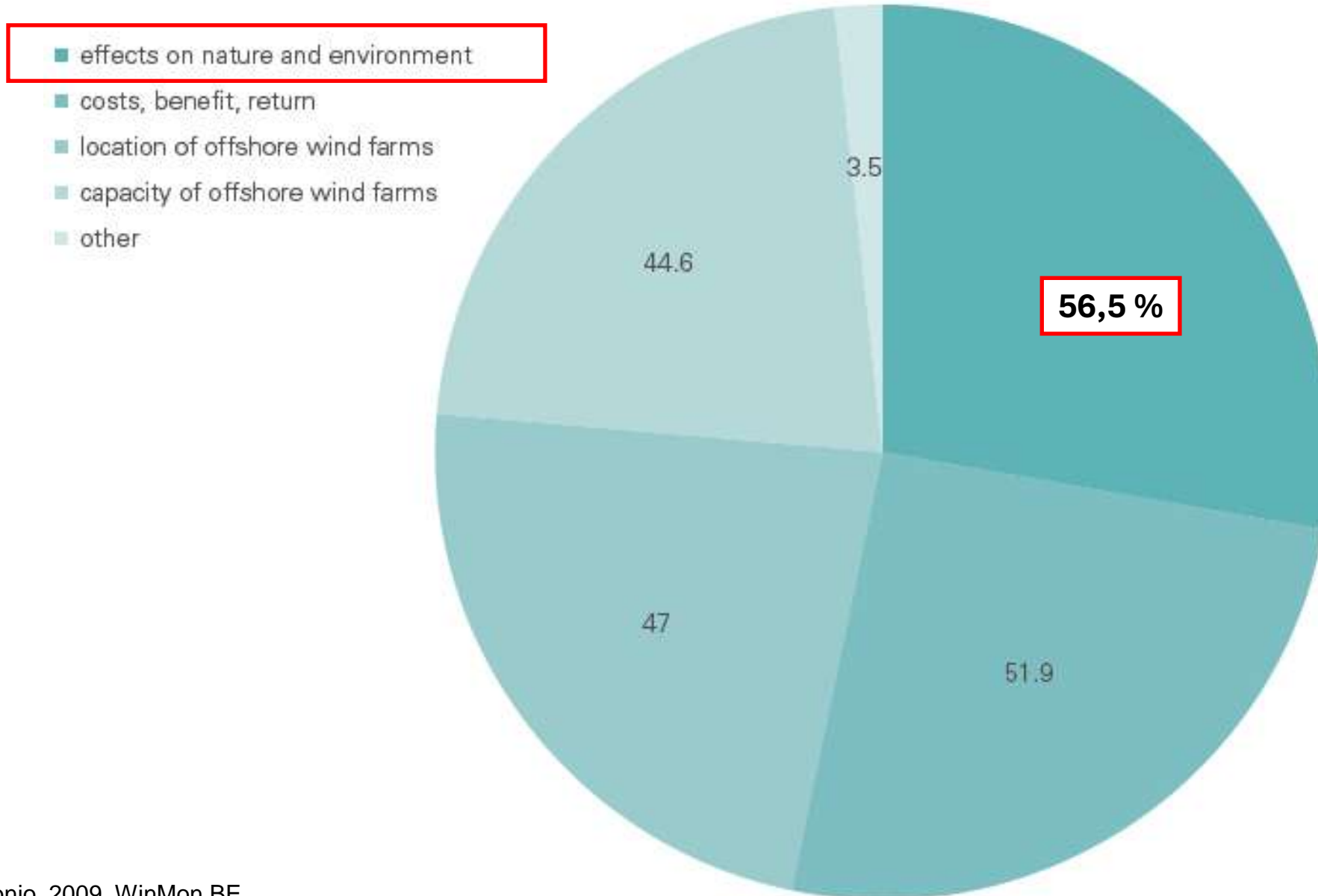
A snapshot...



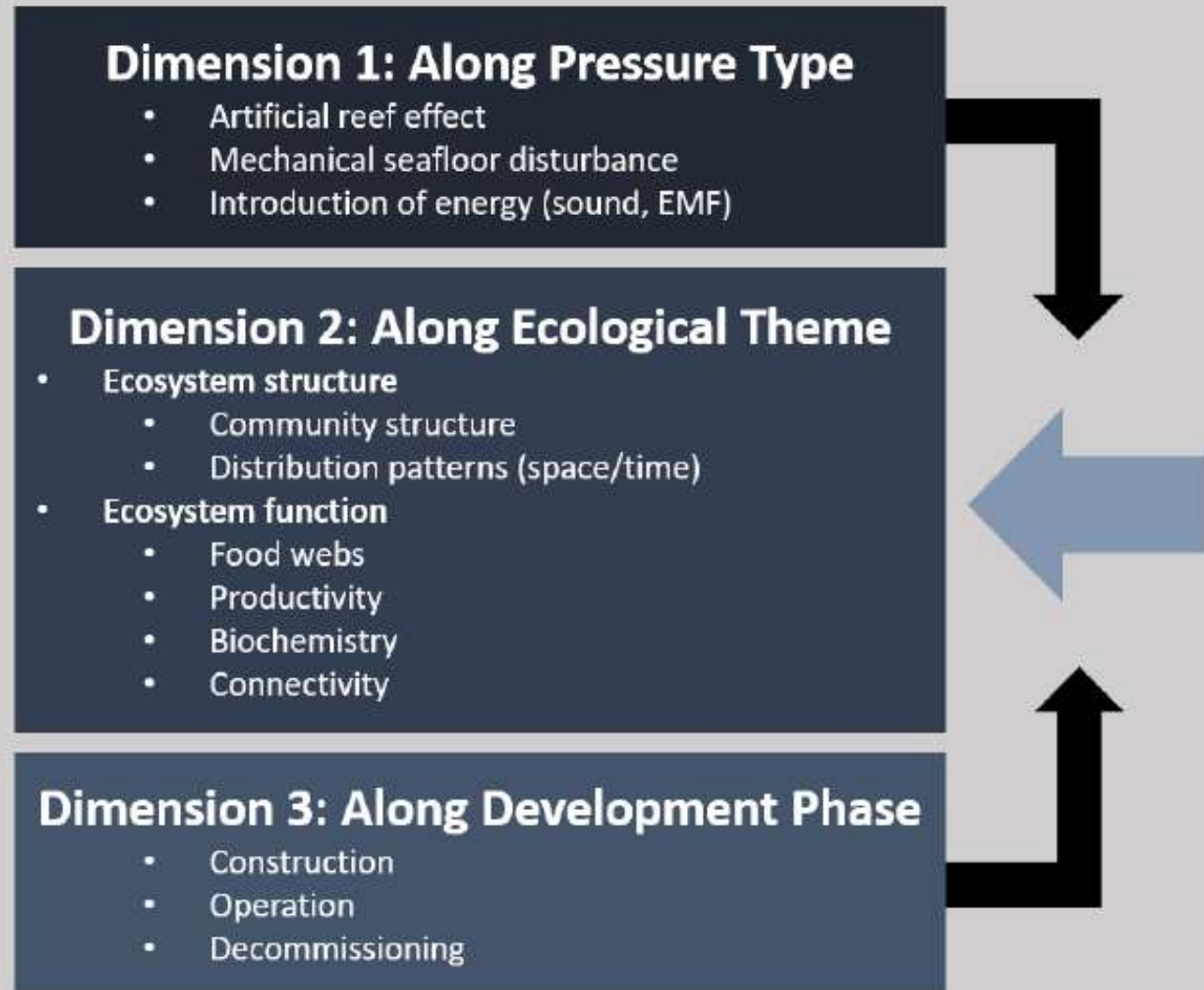
Belgian offshore wind farm zones



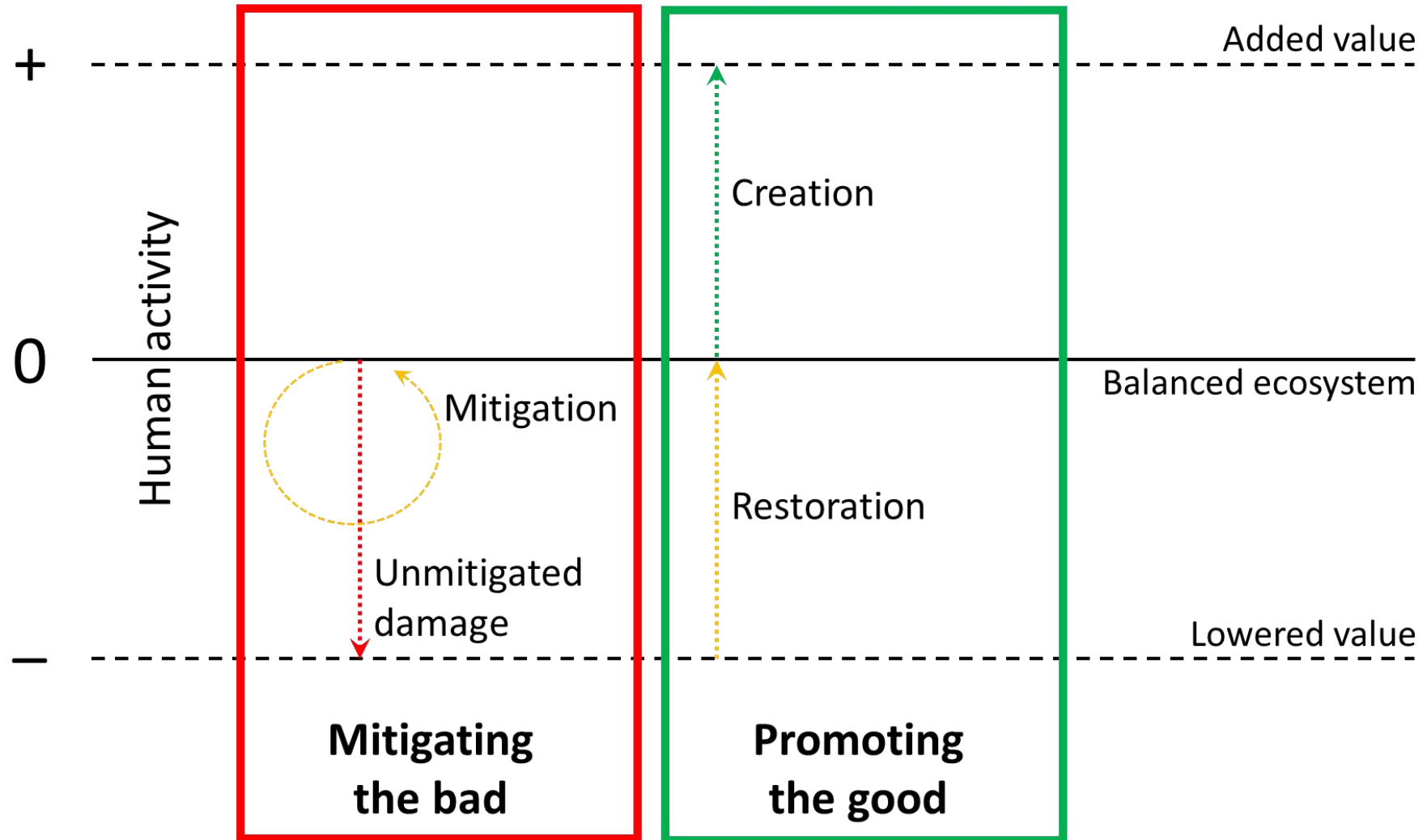
Societal concerns about offshore wind farm impacts



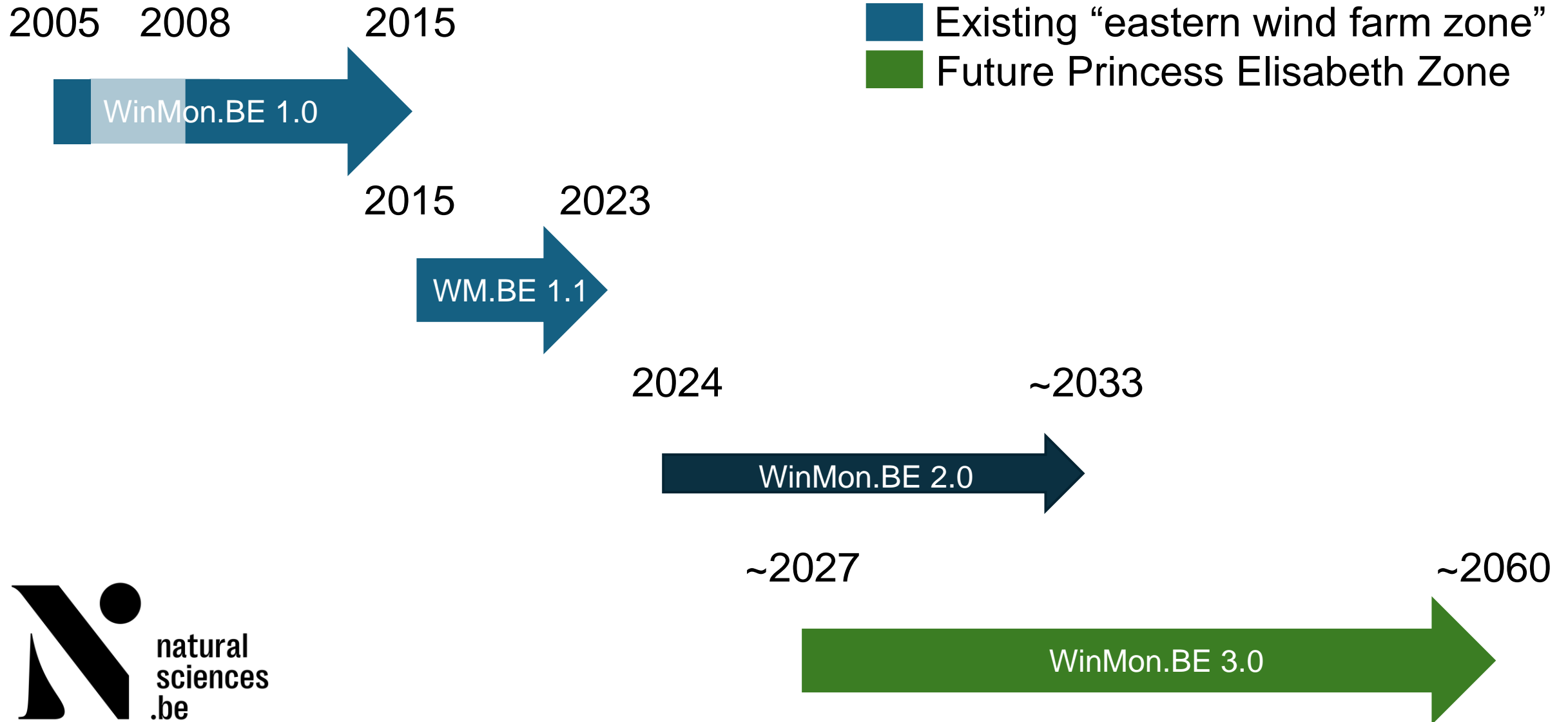
WinMon.BE research focus



WinMon.BE philosophy

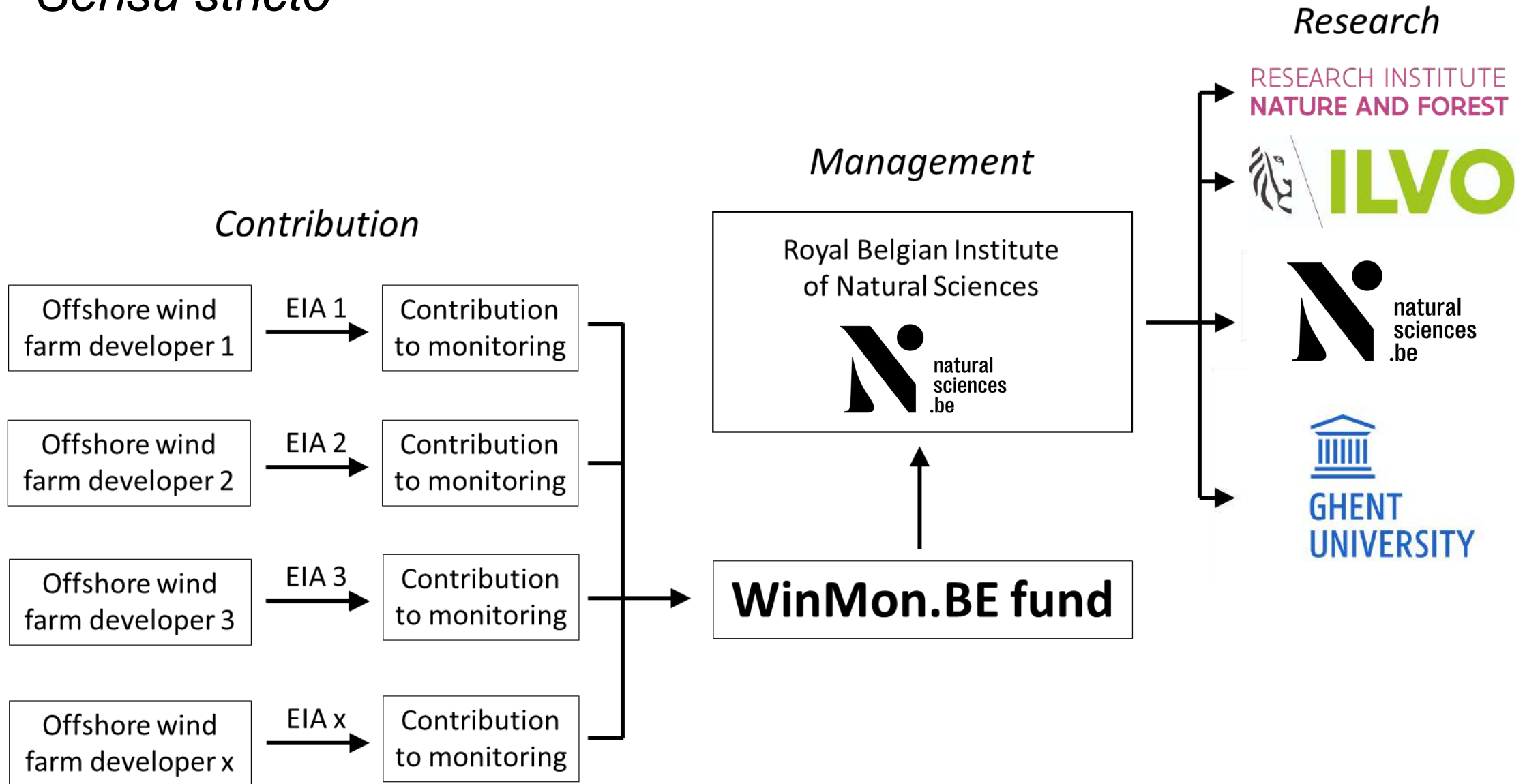


WinMon.BE history



WinMon.BE funding and management scheme

Sensu stricto



WinMon.BE funding and management scheme

Sensu lato

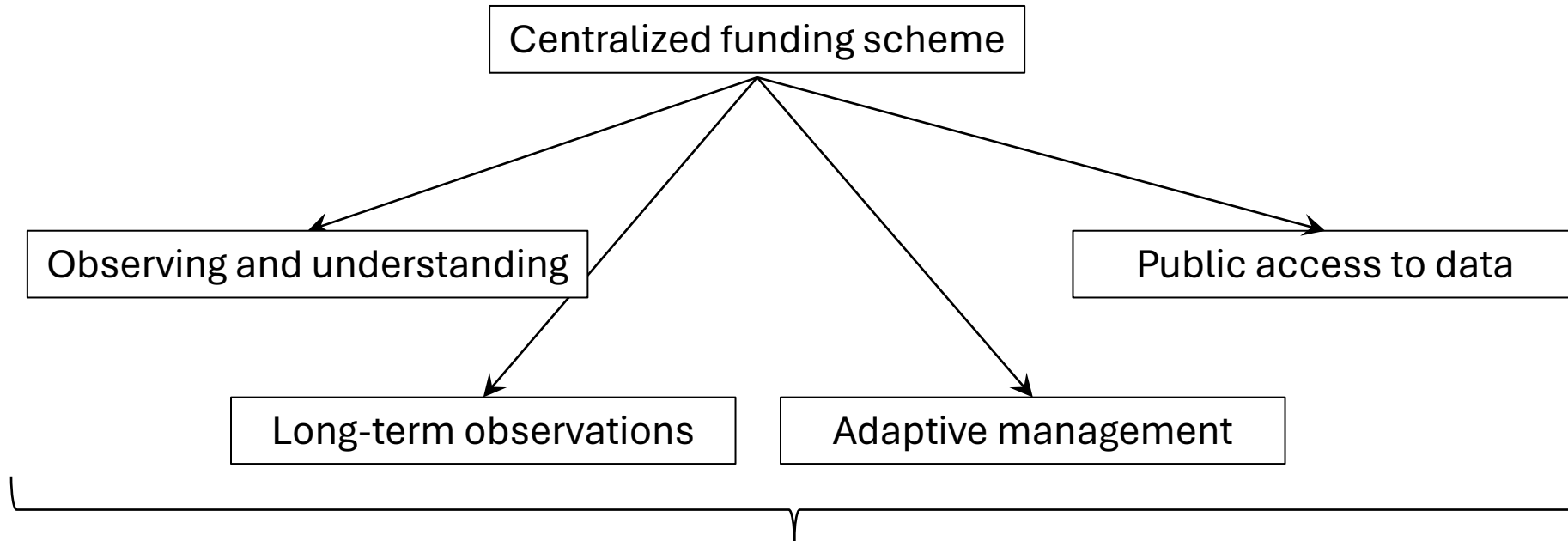


Funding agencies



WinMon.BE funding and management scheme

Advantages

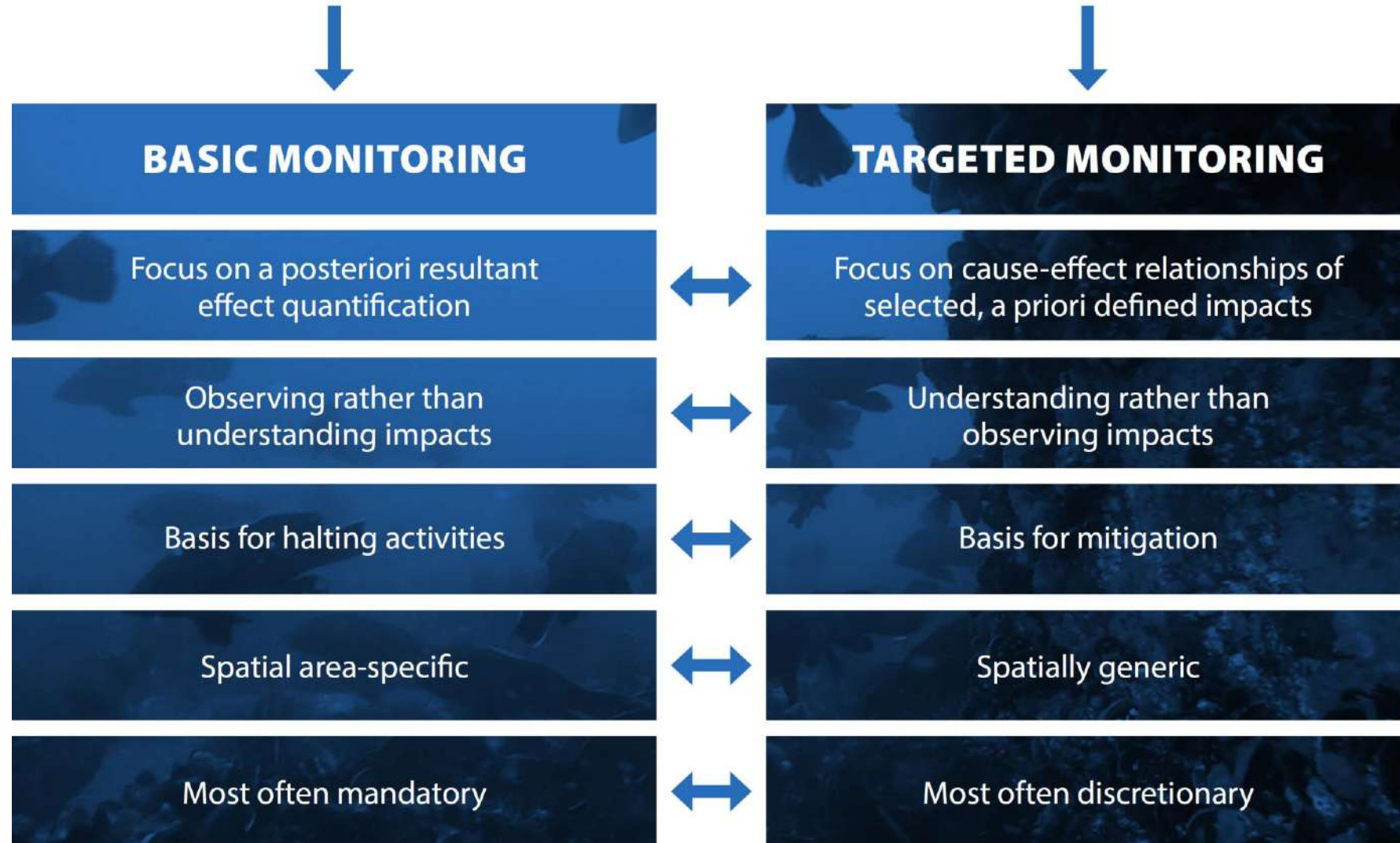


The keys to tackling “so what” questions and sensible measure selection

Intl. coordination of efforts

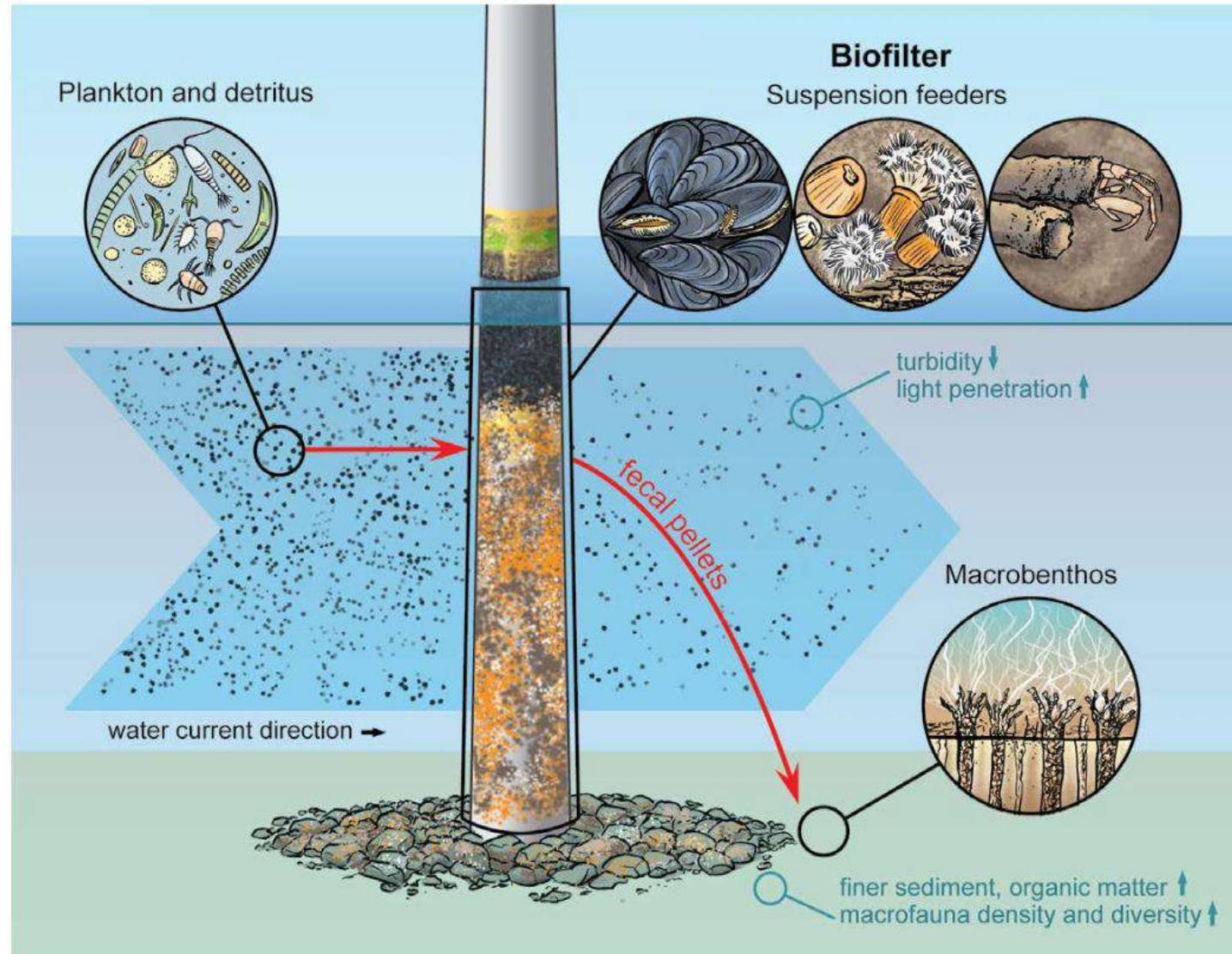
Advantage - Observing and understanding

TWO-TIERED MONITORING APPROACH



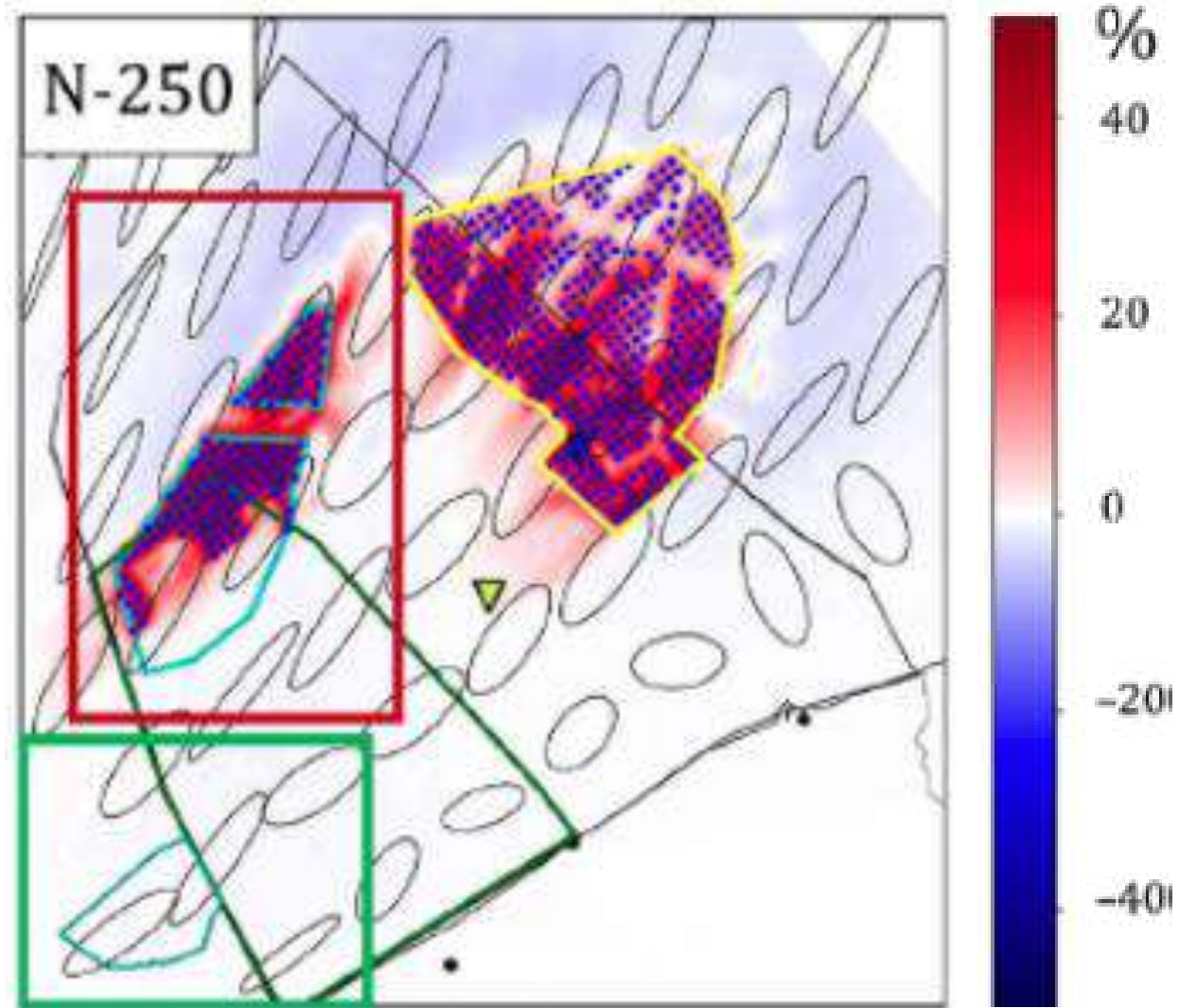
Advantage - Observing and understanding

Example: pelagic organic matter reallocation



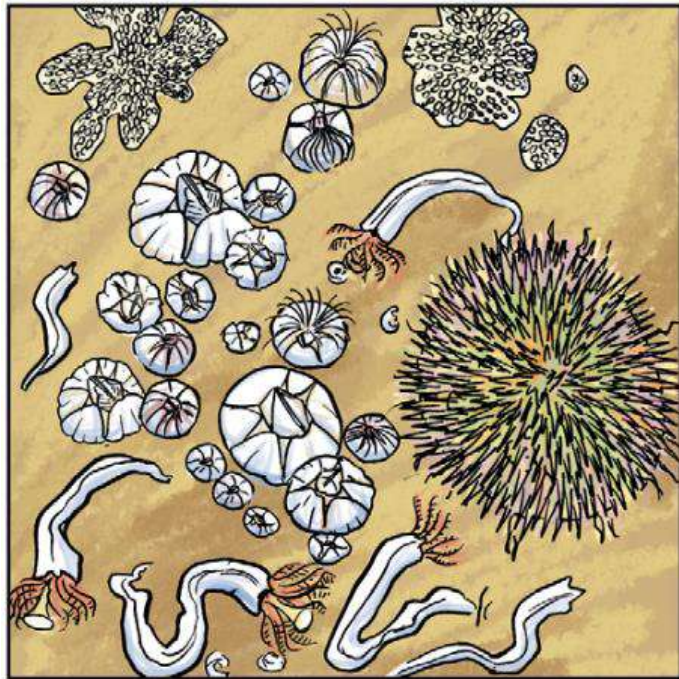
Advantage - Observing and understanding

Example: organic matter deposition

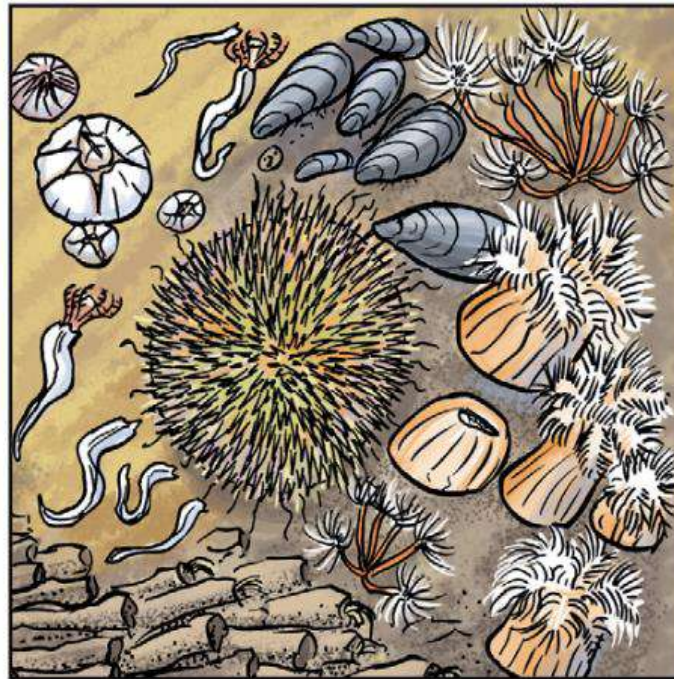


Advantage - Long-term observation

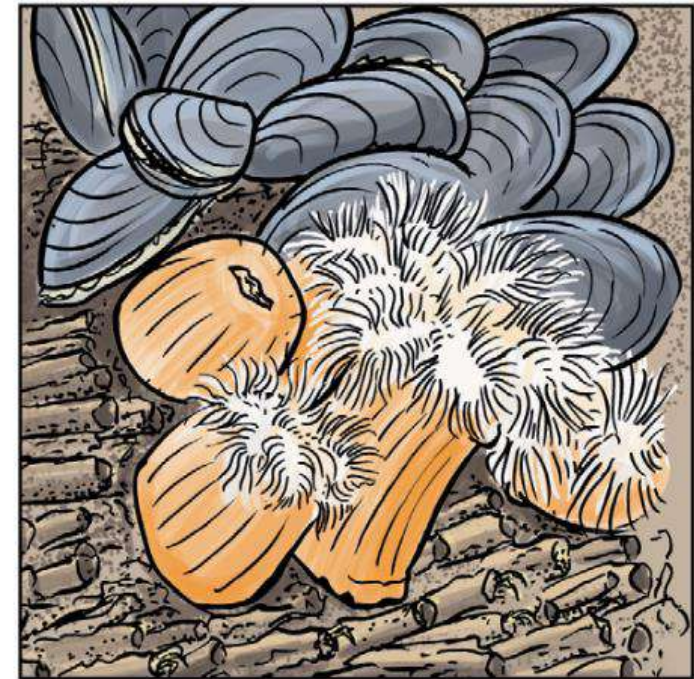
Example: biofouling community succession



Pioneer stage
0-2 years



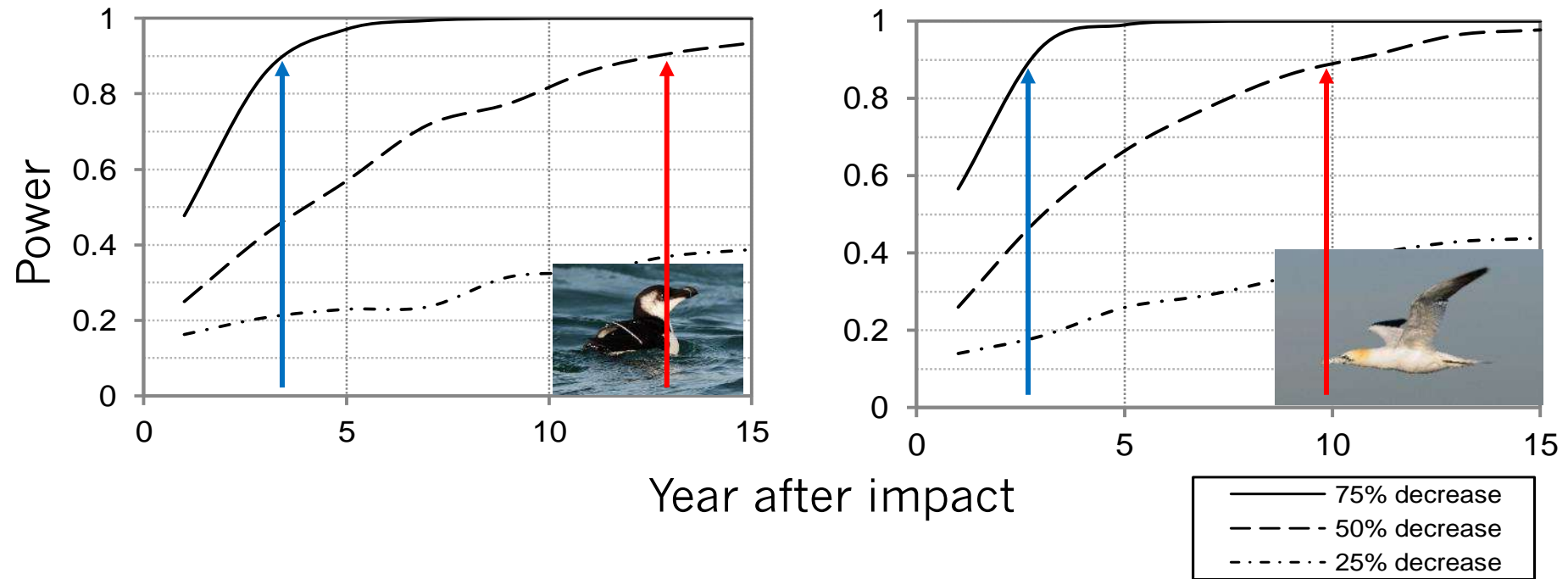
Intermediate stage
3-5 years



Climax stage
6+ years

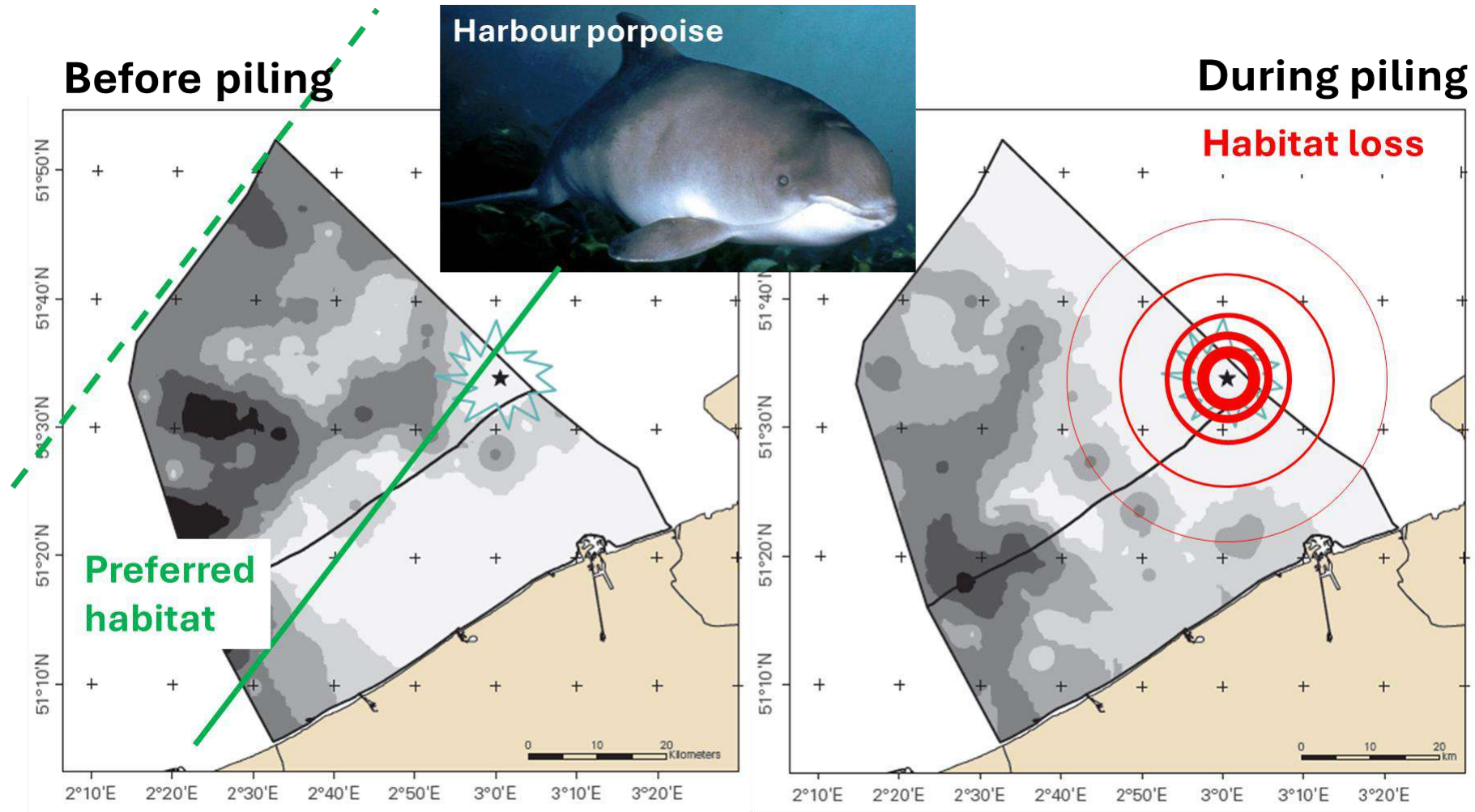
Advantage - Long-term observation

Example: increased analytical power



Advantage - Adaptive management

Example: harbour porpoise disturbance



Advantage - Adaptive management

Example: underwater sound mitigation



Advantage – Public access to data and knowledge

Example: WinMon.BE reports



- 7 organisations
- 12 reports
- 30+ authors
- 130 chapters
- 2100+ pages
- Freely downloadable from mareco-odnature.naturalsciences.be/project/winmon

Advantage – Public access to data and knowledge

Example: WinMon.BE invited courses



UGAIN - UGENT ACADEMIE VOOR INGENIEURS

Faculteit Ingenieurswetenschappen en Architectuur Faculteit Bio-ingenieurwetenschappen

OPLEIDINGEN OVER UGAIN CONTACT

Home > Opleidingen > Offshore wind energy

→ Info form

Offshore wind energy

Autumn 2024

Catch the wave of offshore wind and acquire a broad knowledge from a technological and multidisciplinary perspective!

Offshore wind has a vital role to play in the global transition to green energy. As a rapidly growing energy technology, offshore wind has huge potential around the world.

In the Belgian North Sea, offshore wind farms generate about 10% of Belgium's total electricity demand. By 2030, offshore wind capacity in the North Sea will continue to grow, generating about 30% of electricity demand of Belgium.

For this booming industrial sector, Ghent University provides three tracks of lifelong learning courses for those who want to expand their knowledge of all phases of offshore wind energy, with a mix of academic and industrial speakers.

Foundational track: Covering the basics of offshore wind energy

- Overview of offshore wind farms: from wind turbine systems to the electric grid connection
- Project life cycle (from tendering to decommissioning)
- Offshore wind farm installation (terminology & procedures)
- ABC of offshore wind financing
- Operational excellence in O&M
- Innovation drivers, technology & market trends overview

Advanced track: Technological aspects of offshore wind energy

For those who want to gain in-depth knowledge of following technological aspects

- From wind to wire: electricity
 - From wind power production and conversions up to the grid connection and integration
 - Detailed information about the components (turbine blades, generators, offshore grid,...)
- Structural aspects: offshore foundations



Advantage – Public access to data and knowledge Feeds into Expertise Scientifique Collective (ESCo, France)

The screenshot shows the top navigation bar of the INRAE website with links for JOBS, PRESSE, ANNUAIRE, INTRANET, MÉDIATHÈQUE, and KIOSQUE. It also includes language options (FR, EN) and social media icons. Below the navigation bar, there are logos for the République Française and INRAE, followed by a search bar and several menu items: 'Apprendre et comprendre', 'Nous connaître', 'Collaborer avec nous', 'Nous rejoindre', and 'Europe & International'. The main content area features a large banner with the title 'L'expertise scientifique collective, la prospective et les études' and a 'Sommaire' link. Below the banner, there is a paragraph of text describing the activities of collective scientific expertise, followed by a list of bullet points under the heading 'C'est son caractère collectif qui fait la force de l'expertise scientifique'.

Accueil → Collaborer avec nous → Expertise et appui aux politiques publiques → L'expertise scientifique collective, la prospective et les études

L'expertise scientifique collective, la prospective et les études

[Sommaire](#)

Les activités d'expertise scientifique collective, de prospective et d'étude éclairent la décision publique sur des questions sociétales complexes touchant à l'alimentation, l'agriculture et l'environnement. Elles contribuent aux débats publics et scientifiques en France, en Europe et dans le monde. Elles alimentent également la réflexion de l'institut sur ses propres orientations scientifiques.

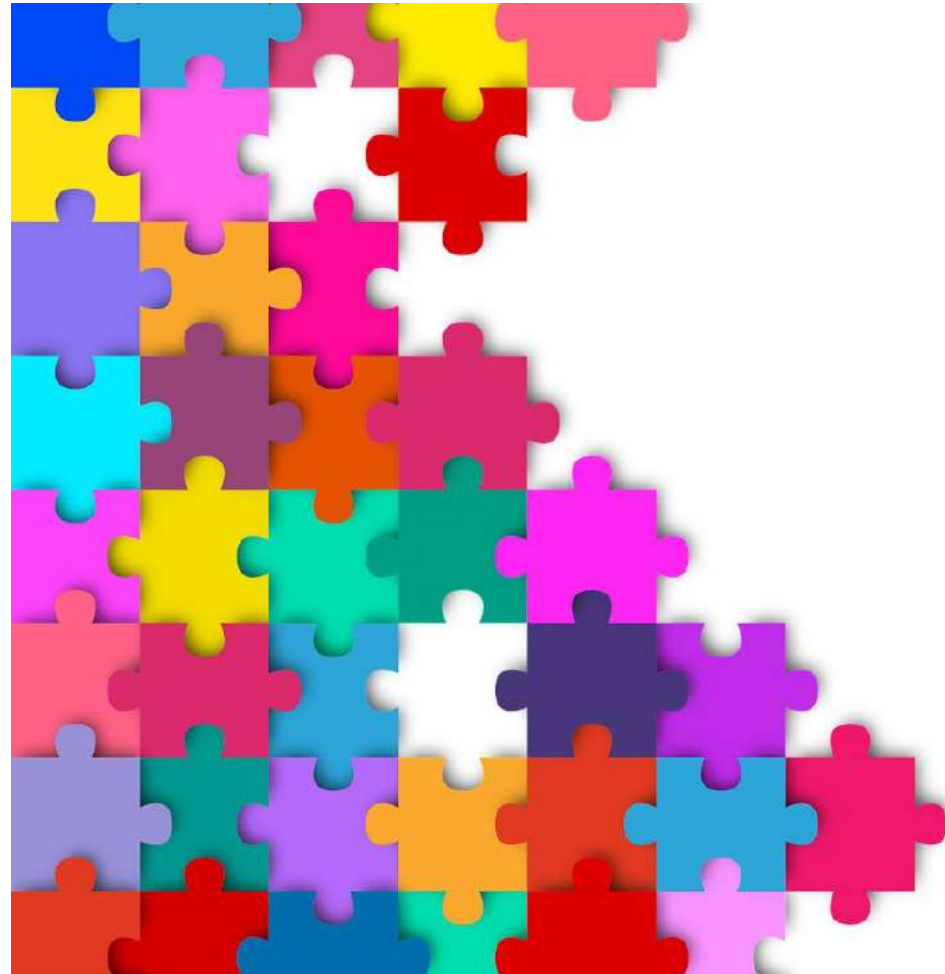
Qu'elles soient confiées à l'institut ou demandées par l'institut, ces opérations sont coordonnées à INRAE par la Direction de l'expertise scientifique collective, de la prospective et des études (DEPE).

"C'est son caractère collectif qui fait la force de l'expertise scientifique"

- Comment se déroule une expertise scientifique collective à INRAE ?
- Quelles en sont les rôles et les acteurs ? Comment sont recrutés les experts ?

Advantage – International coordination of research efforts

Towards a comprehensive understanding



Single wind turbine



Single wind farm



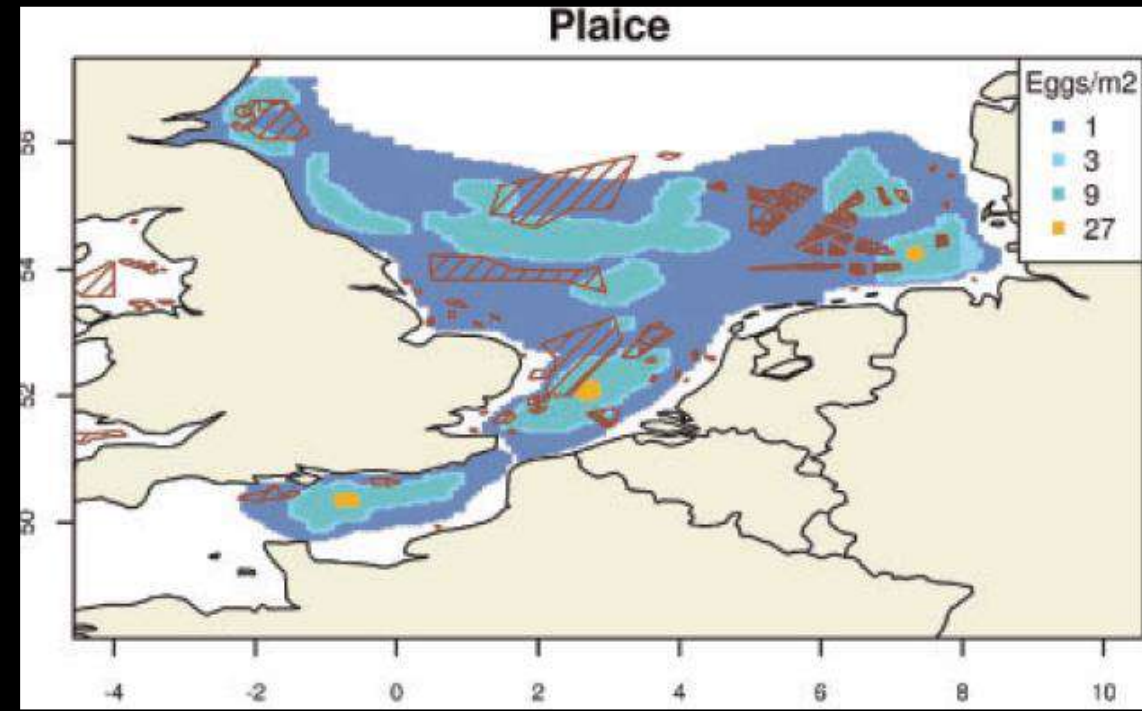
Multiple wind farms



← **Current monitoring and research programs** →

← **Here's where we want to be** →





Expected change of settlement under different scenarios of altered egg production

	-20%	+10%	+25%	+ 50%
Plaice	-1.78	-0.89	2.25	4.45
Turbot	-0.4	0.2	0.5	1
Dab	-3.22	1.61	4.03	8.05
Sole	-0.36	0.18	0.45	0.9
Brill	-1.38	0.69	1.73	3.45
Flounder	-0.46	0.23	0.58	1.15

To be continued !

Advantage – International coordination of research efforts

ICES/CIEM paving the way to international collaboration



ICES

CIEM

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