



# R&D Webinar - NESTORE Project Outcomes | 26/05/2026

## Towards cumulative impact assessment of offshore wind farms

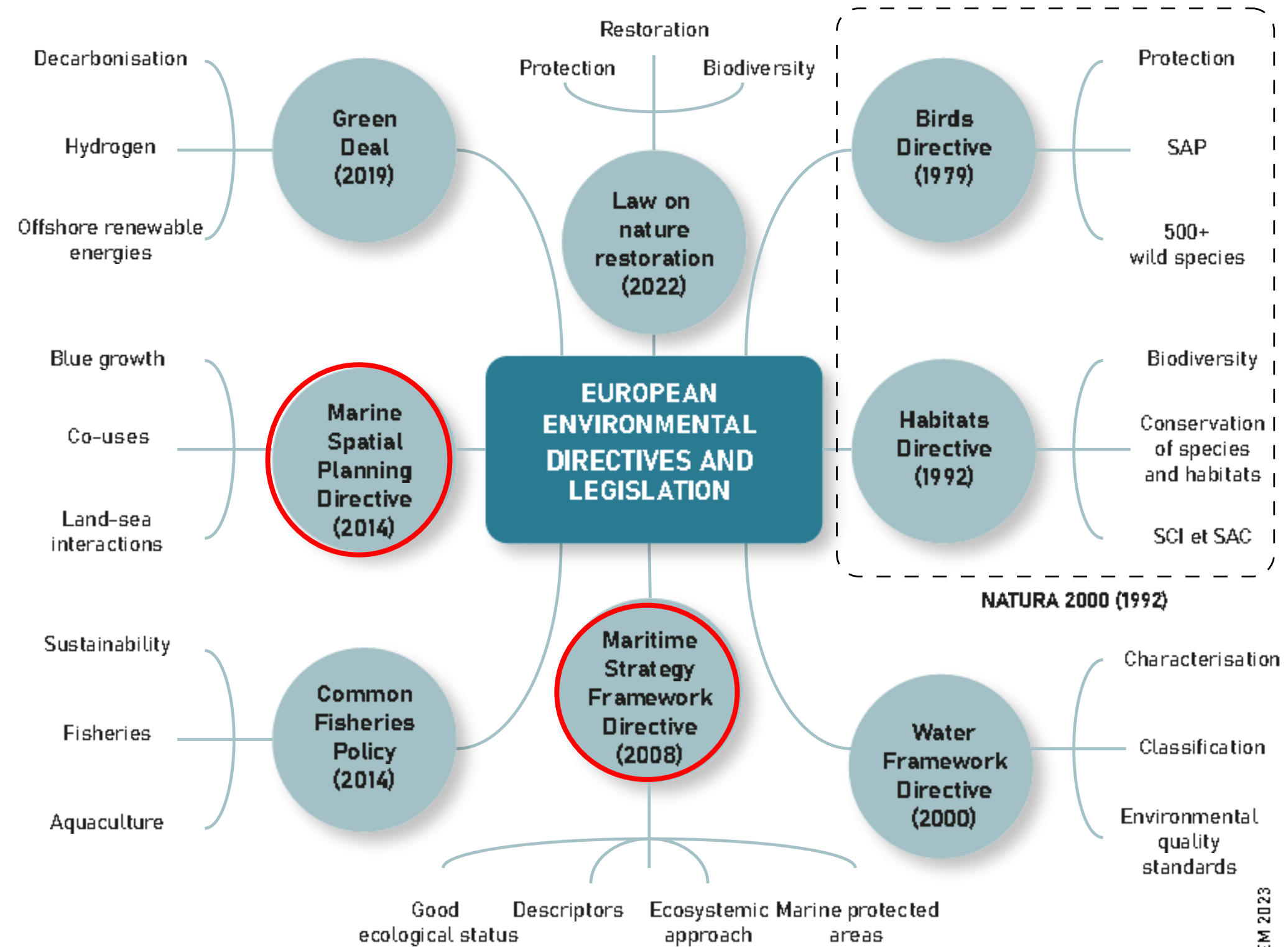


# Bridging the gap between governance and ecosystem modelling

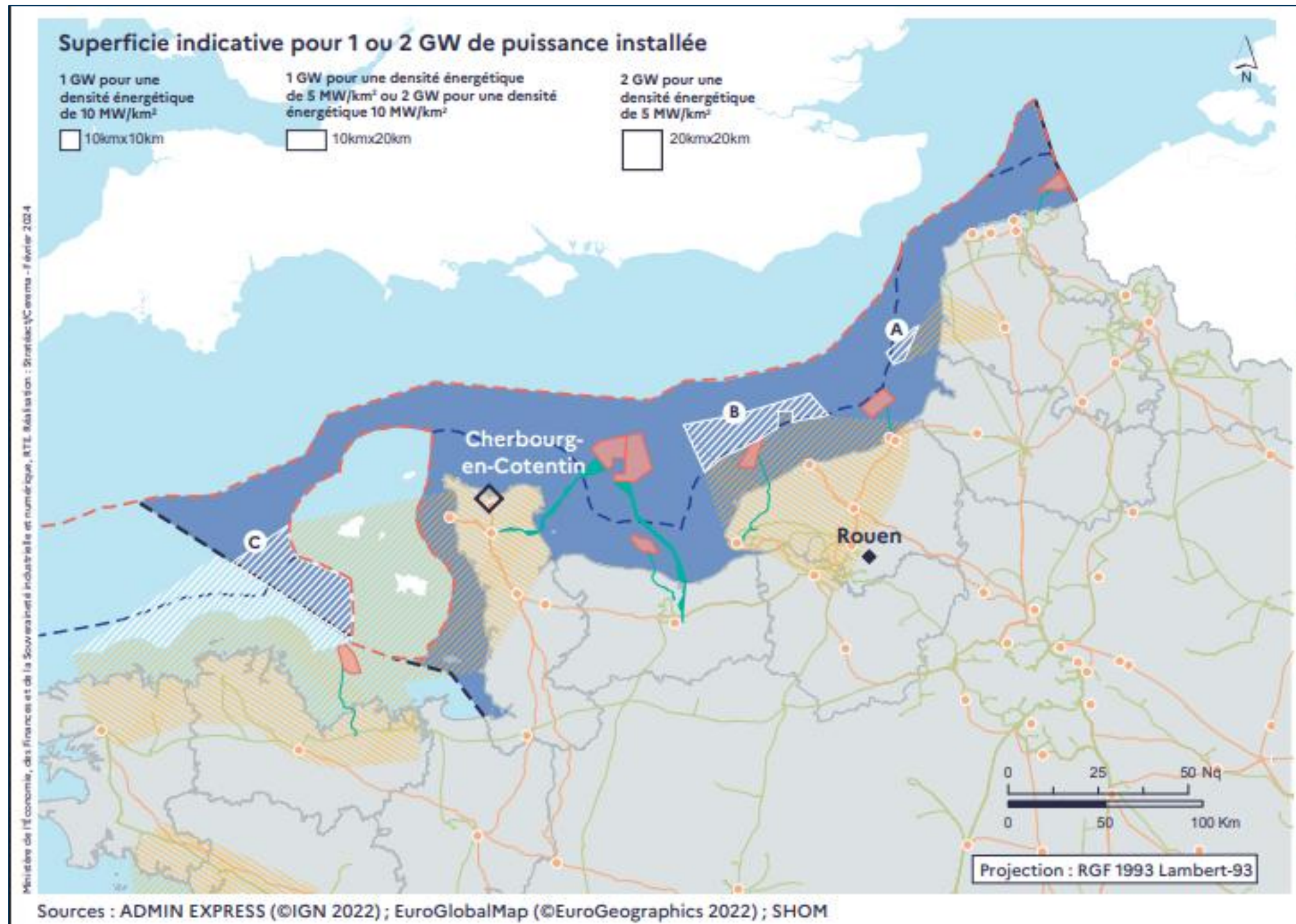
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**Rhoda Fofack-Garcia & Sybill Henry (FEM)**

- **Governance framework...**
  - 2006 : UE Integrated Marine Policy
  - Two main pillars : MSFD (2008) & MSP (2014)
- **... and French application**
  - Integrated management of the sea and coastline
  - Cycle 2 merges MSFD & MSP into a unique **maritime seafront strategic document**
  - Treats OE & SOE equally with an alignment of different cyclical timeframes



SAP : special area of protection  
 SCI : site of community importance  
 SAC : special area of conservation



- Eastern English Channel and North Sea case study
- Cycle 2 of the maritime seafront strategic document (published in 2019)

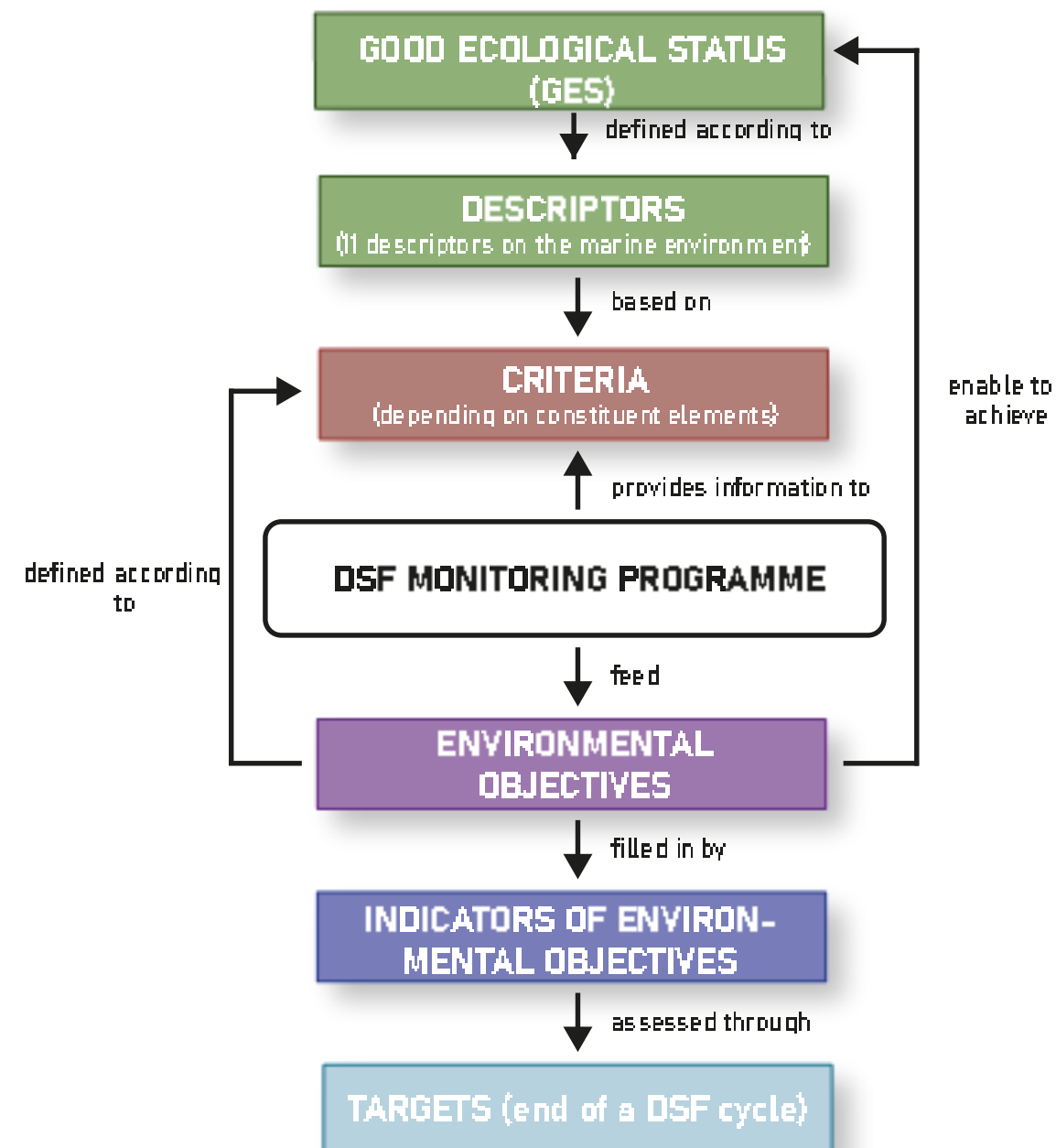
- MSP challenges in France: how are environmental and socio-economic issues being addressed in the context of offshore wind acceleration?
- What regulatory and operational needs?
- How to link MSP governance issues and the assessment of cumulative effects using the ecosystem-based approach?

1. ANALYSIS OF A MERGING PROCESS  
FROM REQUIREMENTS TO (IN)ACTION

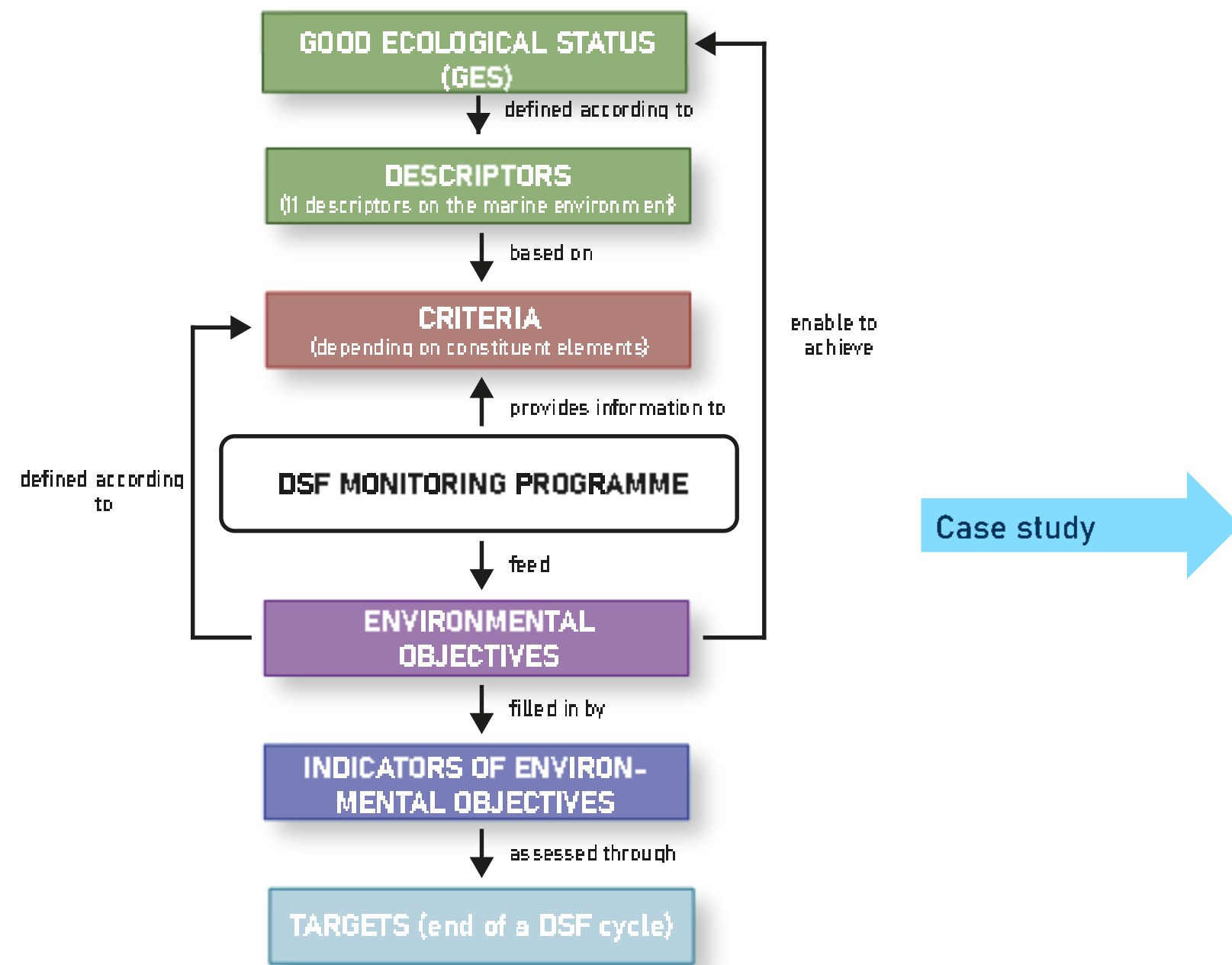
2. ECOSYSTEM-BASED APPROACH TO  
ADDRESS CUMULATIVE EFFECTS IN MSP

3. CONCLUSION AND PERSPECTIVES.

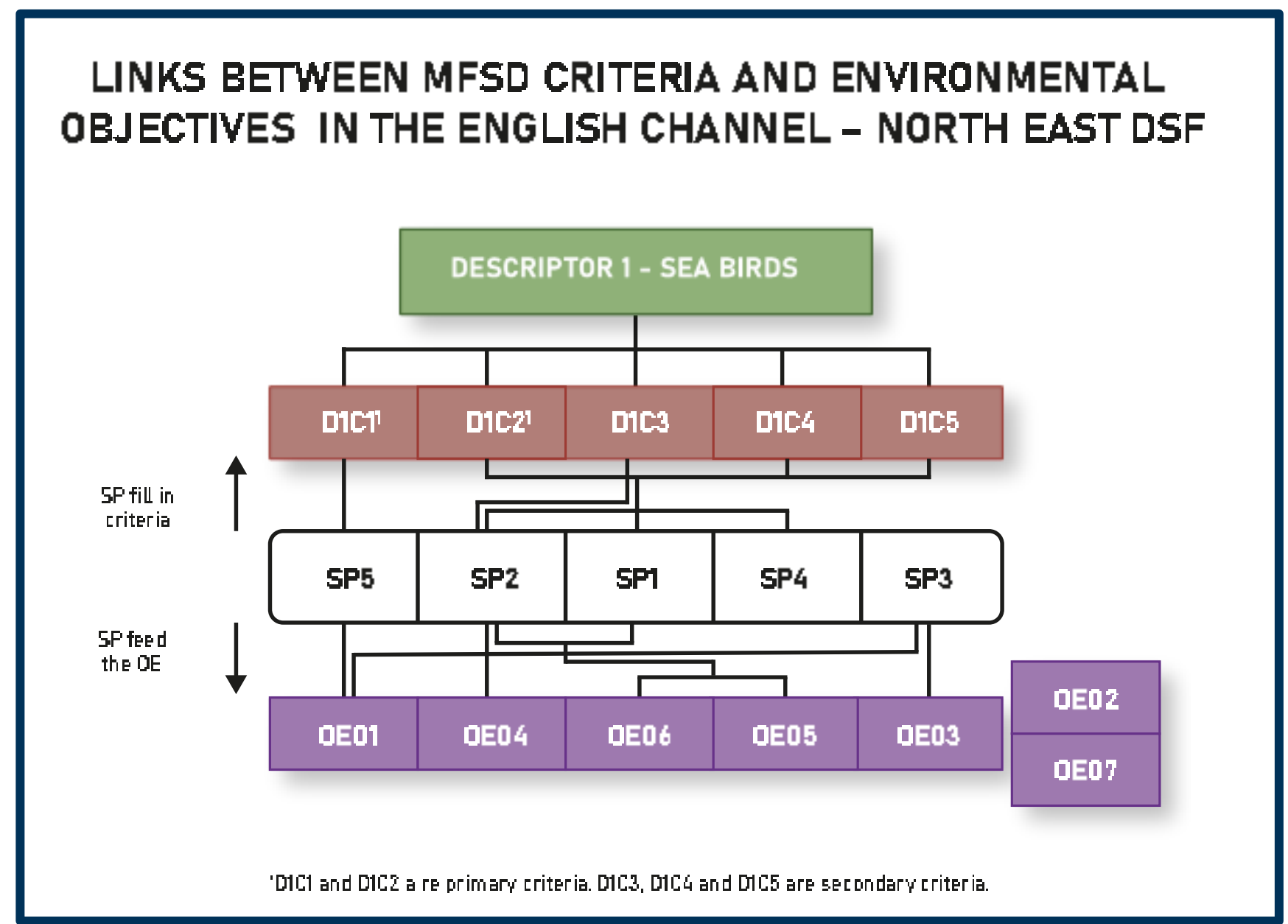
- Method for analysis the **merging process** between MSFD and MSP EU directives
  - Interviews with stakeholders selected based on their role in implementing MSFD & MSP
  - 11 descriptors analyzed & 52 environmental objectives (EO)



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Case study →



- Main results

- Effectiveness and relevance of environmental objectives

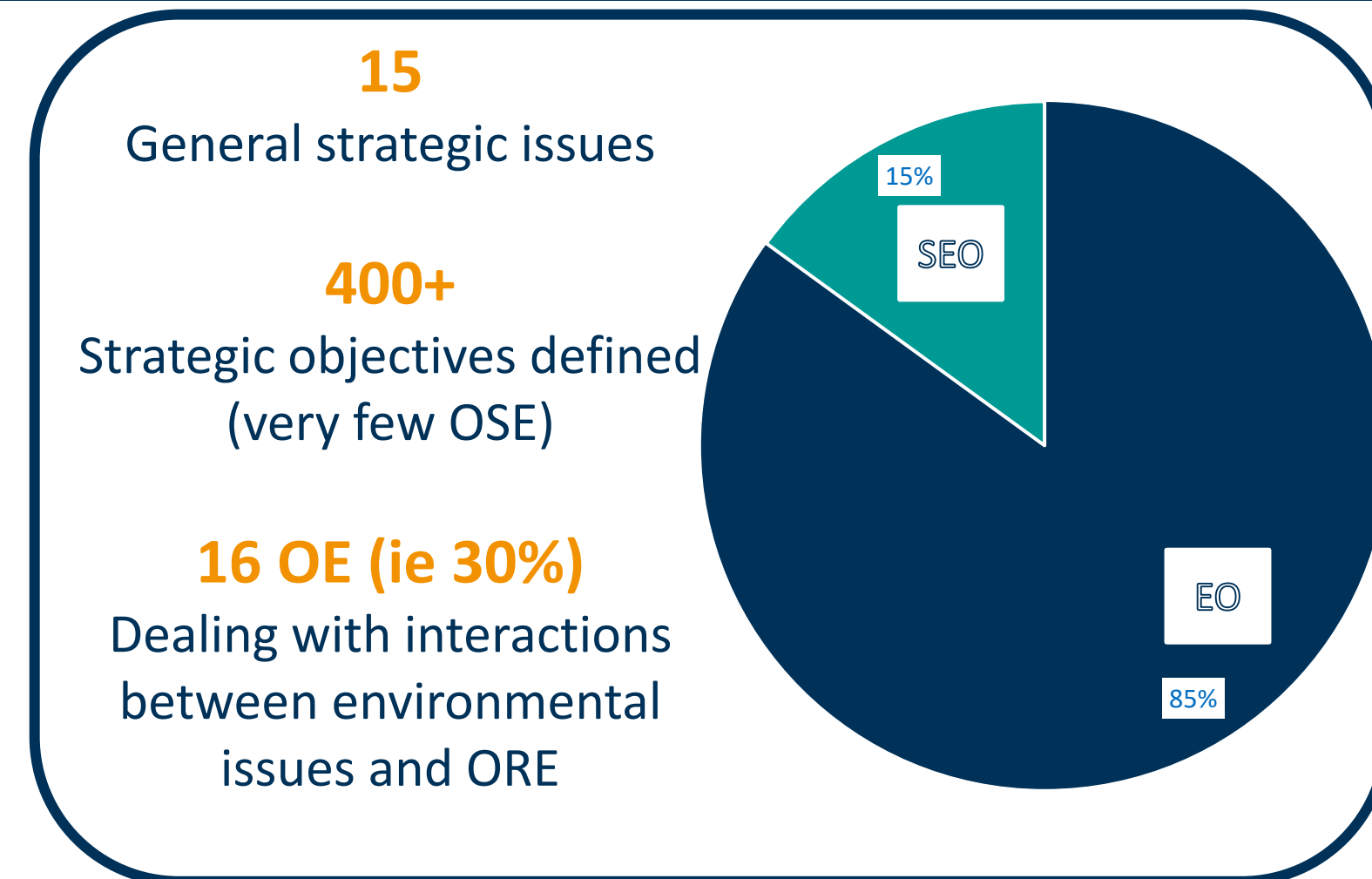
- Disconnection between EO and the good environmental status
- Sub-monitoring programs not associated with an EO
- No operational /administrative criteria for assessment throughout the cycle

- Integrated maritime approach

- Integrated planning undermined by the unbalance between OE and Socio-economic objectives (SEO)

- A regime shift in the governance

- Multi-scale and temporal uniformization of timelines
- Acceleration of offshore wind deployment: from cost-based challenges to zoning-based issues



- Which **method** should be chosen for linking MSP governance issues and the **assessment of cumulative effects** using the **ecosystem-based approach** ?
  - Review of the main methods for Cumulative Effects assessment

METHODS		REFERENCES
<b>HARMONY</b>	Define an impact level based on the intensity of pressures on target ecosystems	Gimard., 2018
<b>CUMULEO</b>	Estimate the importance of habitat based on the distribution of pressures and species diversity	Gimard., 2018
<b>ODEMM</b>	Estimate an impact level based on the occurrence of pressures on target ecosystems	Gimard., 2018
<b>HELCOM</b>	Define an impact index based on ecosystem sensitivity	Michel., 2019
<b>SYMPHONY</b>	Identify the most sensitive ecosystems	Michel., 2019
<b>Carpe Diem</b>	Identify areas with concurrent risks using an approach based on cumulative impact risks and cumulative pressure exposure	Michel., 2019
<b>SCAIRM</b>	Assess impact risks by evaluating changes in state of an ecological receptor in response to a stressor	Piet., 2023
<b>GT ECUME</b>	Estimate the expected cumulative impact for pressure-receptor pairs identified and prioritized by experts	Brignon., 2022
<b>O'Hara</b>	Assess of cumulative impacts using an approach based on species, habitats, functional traits through modeling of pressure intensity and the vulnerability of these parameters	O'Hara., 2024
<b>Bow tie</b>	Map the impact chain by identifying links for definition of potential pathways for cumulative exposure	OSPAR Commission., 2017

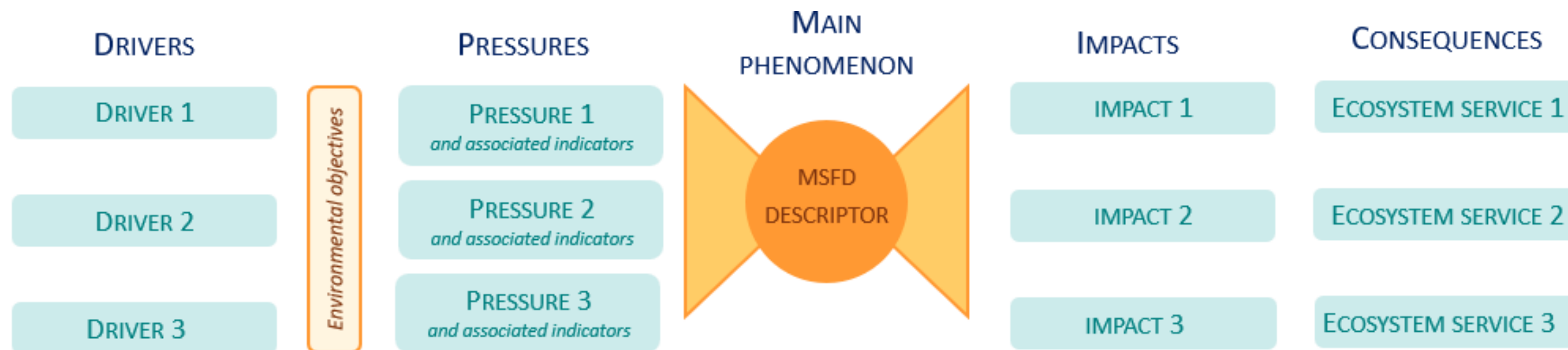
- Selected method → **OSPAR Commission., 2017** with **Bow tie approach**

**Bow tie**

Map the impact chain by identifying links for definition of potential pathways for cumulative exposure

OSPAR Commission., 2017

- Propose a draft assessment of cumulative effects using MSFD indicators
- Understanding the causes and consequences of pressures that can have an impact on the state of marine ecosystems
- Simple schematic representation to describe and analyze risk pathways from pressures to outcomes and examine controls



- Defining scenarios
  - Governance-specific
  - Suitable for ecosystem-models
- Exploratory method for adapting “bow tie” approach and propose relevant scenarios
  - 9 workshops with researchers from ecological fields and ecosystem-based approach
  - 5 interviews with researchers from ecosystem-based approach
- Results
  - 18 scenarios, 8 in capacity to complete regulatory indicators

### Habitat loss scenario

« Using data from the mapping of benthic habitats within high-protection zones, test different levels of habitat loss to assess the impact of this loss on the ecosystem : 0, x, y, z, 100% »

### Ecological succession scenario

« Test the biofouling development by biomass assessment of relevant species : no biofouling, biofouling at 3, 5, 15, 25 and 50 years »

### Bio colonization profiles scenario

« Test the development of two different types of bio colonization profiles : dominance of filterer-feeding communities, dominance of macroalgal communities »

- Replicate the methods implemented in NESTORE across **all French seafronts**
  - **A comparison with other MSP governance mechanisms used for prioritization in Europe (e.g., Belgium)**
- Advance the analysis of cumulative effects by **connecting all results** obtained with the **OSPAR method to all environmental issues**
- **Engage stakeholders and seafront authorities** in the ongoing work to influence the regulatory framework
- Develop **multi-scale, scenario-based decision support tools**

Thank you for your attention!

