How to "B-USEFUL" in marine biodiversity conservation and spatial planning

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Learn more here:

B-USEFUL

User-oriented Solutions for Improved Monitoring and Management of Biodiversity and Ecosystem services in vulnerable European Seas

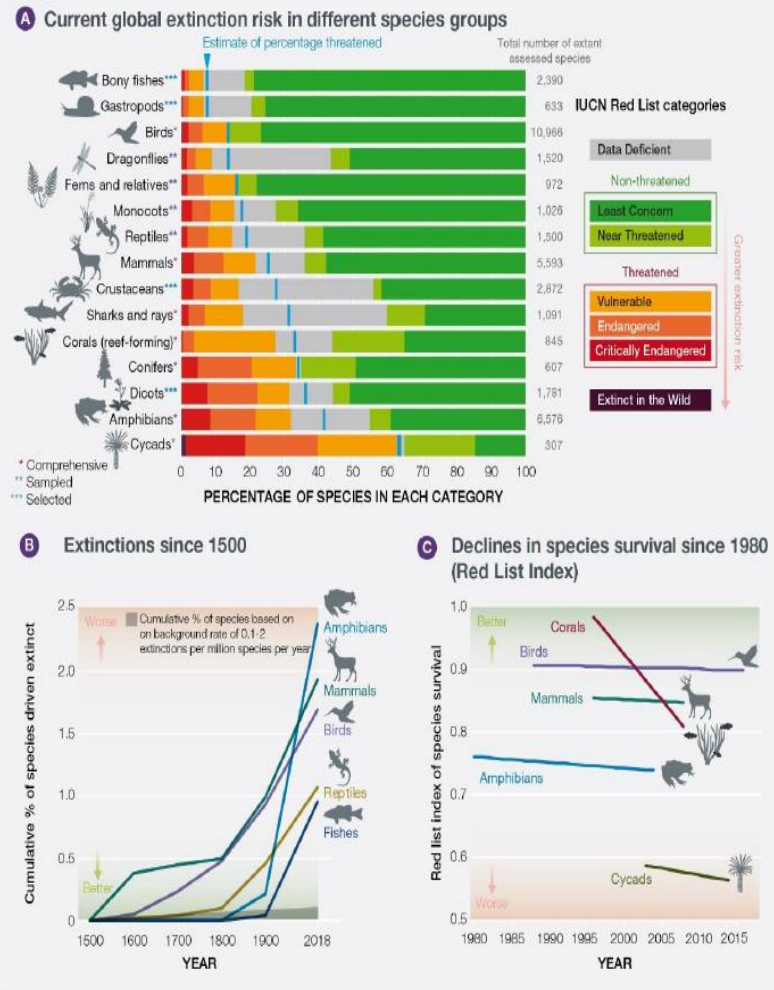
Coming soon: b-useful.org

HELLENIC REPUBLIC MINISTRY OF DEVELOPMENT AND INVESTMENTS | GSRI GENERAL SECRETARIAT FOR RESEARCH AND INNOVATION

European Commission

“The Biodiversity Crisis”

We are rapidly losing species - but not doing enough to halt the loss!

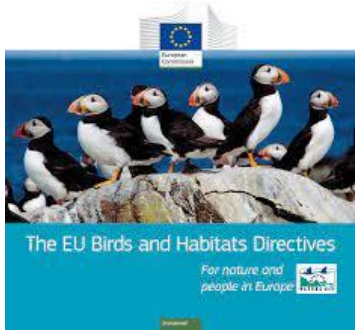


Goal	Target	Target element (abbreviated)	Progress towards the Aichi Targets: Poor	Moderate	Good
A. Address the underlying drivers	1	1.1 Awareness of biodiversity			
		1.2 Awareness of steps to conserve			
	2	2.1 Biodiversity integrated into poverty reduction			
		2.2 Biodiversity integrated into planning			
		2.3 Biodiversity integrated into accounting			
		2.4 Biodiversity integrated into reporting			
	3	3.1 Harmful subsidies eliminated and reformed			
		3.2 Positive incentives developed and implemented			
	4	4.1 Sustainable production and consumption			
		4.2 Use within safe ecological limits			
B. Reduce direct pressures	5	5.1 Habitat loss at least halved			
		5.2 Degradation and fragmentation reduced			
	6	6.1 Fish stocks harvested sustainably			
		6.2 Recovery plans for depleted species	Unknown		
		6.3 Fisheries have no adverse impact			
	7	7.1 Agriculture is sustainable			
		7.2 Aquaculture is sustainable			
		7.3 Forestry is sustainable			
	8	8.1 Pollution not detrimental			
		8.2 Excess nutrients not detrimental			
	9	9.1 Invasive alien species prioritized			
		9.2 Invasive alien pathways prioritized	Unknown		
		9.3 Invasive species controlled or eradicated			
		9.4 Invasive introduction pathways managed			
	10	10.1 Pressures on coral reefs minimized			
		10.2 Pressures on vulnerable ecosystems minimized			

IPBES 2019

“The Policy landscape”

Convention on Biological Diversity



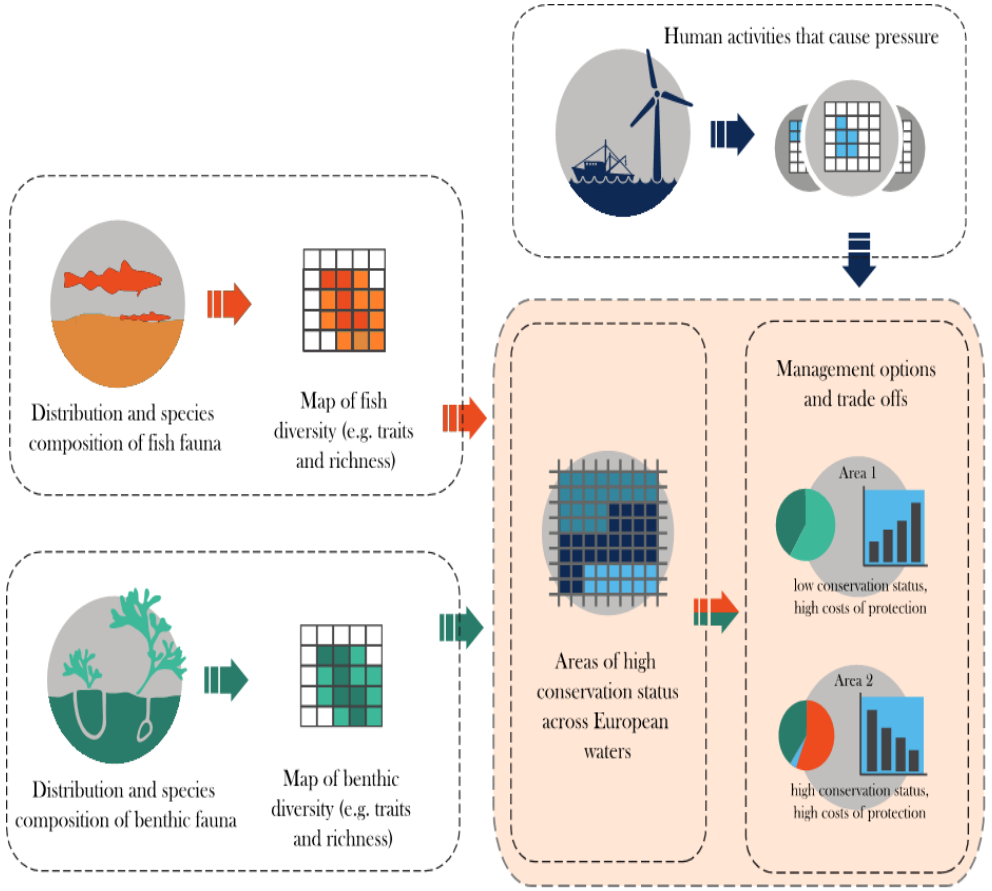
Aims: “Biodiversity is back on a path to recovery by 2030, and ecosystems and their services are preserved and sustainably restored on land, inland water and at sea”

Actions: “at least 30% of the land and sea should be protected with 10% strictly protected” – “focus on areas of very high biodiversity value or potential”

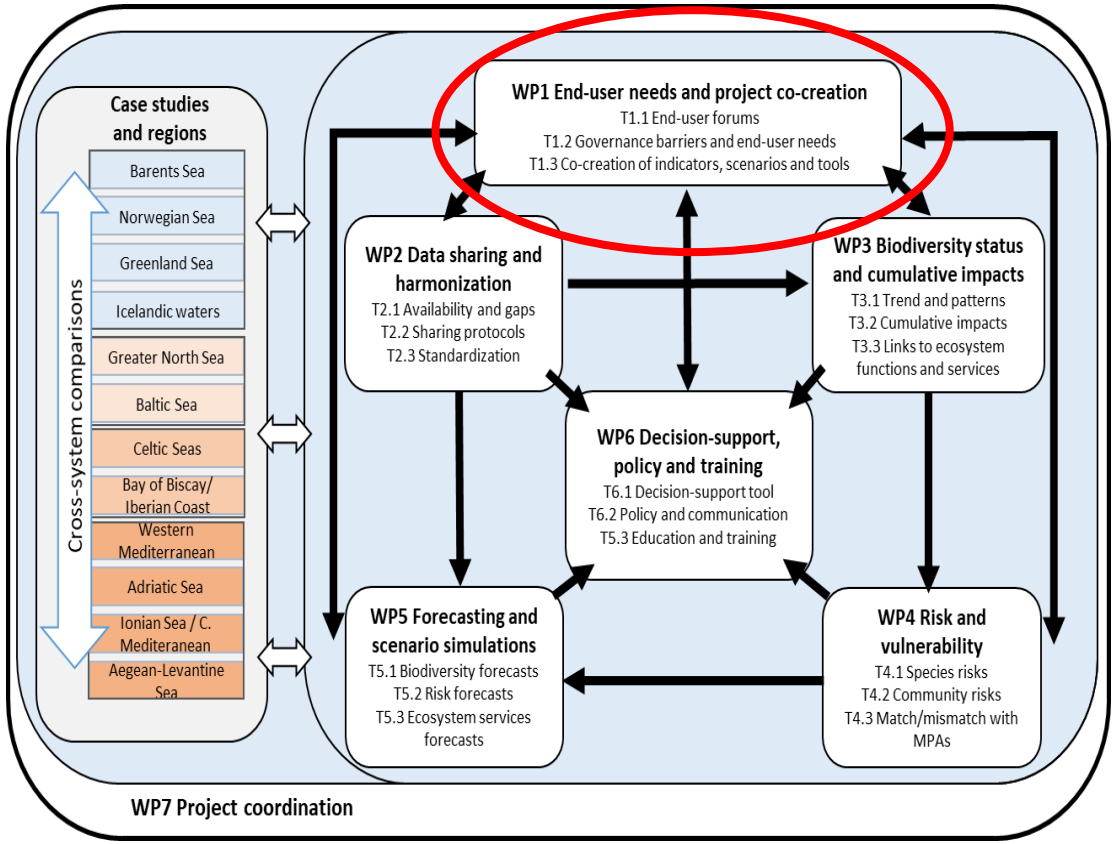
How can we achieve this?

User-oriented Solutions for Improved Monitoring and Management of Biodiversity and Ecosystem services in vulnerable European Seas (*B-USEFUL*)

The overarching goal of B-USEFUL is to ***co-develop a set of user-oriented solutions and decision-support tools*** *allowing end-users to* ***identify and visualize areas of particular importance for marine biodiversity and ecosystem services****, as well as* ***identify trade-offs with other maritime sectors*** *(e.g., fishing and offshore energy). This in order to* ***better prioritize conservation efforts, including Marine Protected Areas****, to achieve the ambitious policy goals putting Europe´s marine biodiversity on the path to recovery by 2030.*

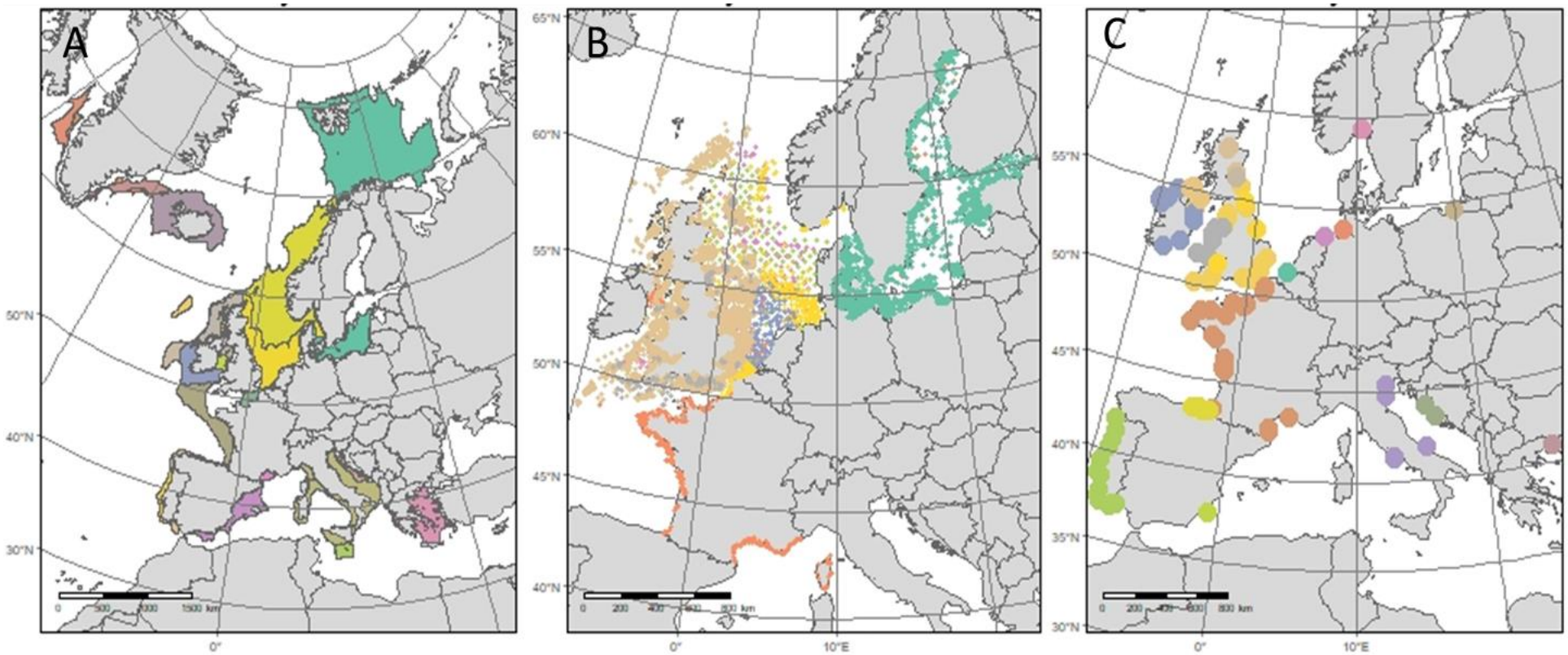


WP1: End-user needs and project co-creation: identify the key needs of marine biodiversity spatial planning users. The end-user forum will include not only managing and policy-designing users, but also NGO and industry stakeholders. This user forum **will co-create** with partners **indicators, scenarios and decision-support tools**.



MacKenzie et al. 2019

WP2. Data integration and sharing: (i) identify available sources and gaps of biodiversity and pressure data; (ii) develop transparent protocols for sharing and exchange of data; iii) develop methods and procedures for correcting and standardizing raw monitoring data within and across survey.

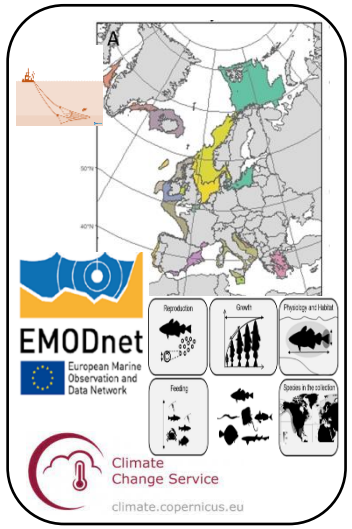


Demersal fish | Benthic invertebrates | Coastal fish

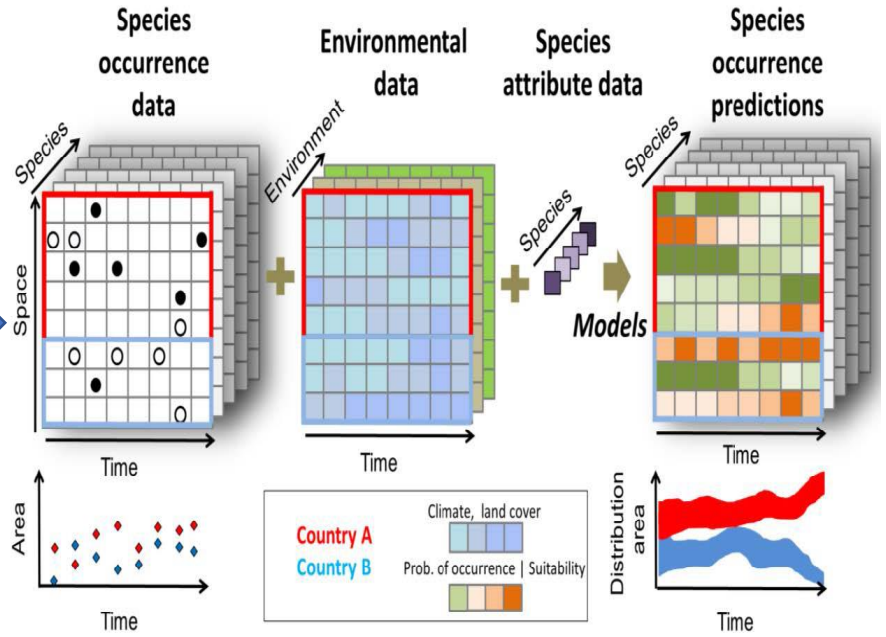
Make use of existing European data infrastructures (e.g., Copernicus, Galileo/EGNOS, EMODNet) and high resolution data collected by project partners!

WP3. Biodiversity status and cumulative impacts: i) estimate a set of **multiple biodiversity indicators** at different spatial and temporal scales, (ii) assess the **status and cumulative impacts of multiple stressors** acting on biodiversity; (iii) assess the effect of biodiversity indicators on overall measures of **ecosystem functions and services**.

Input

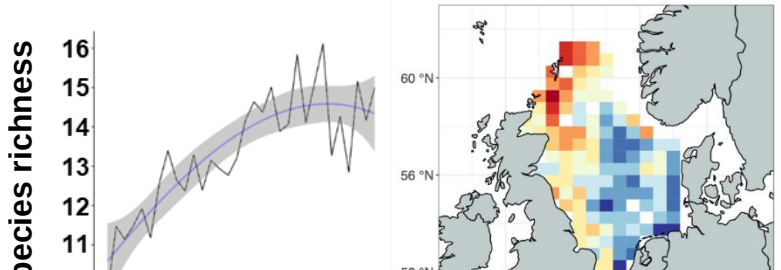


Method

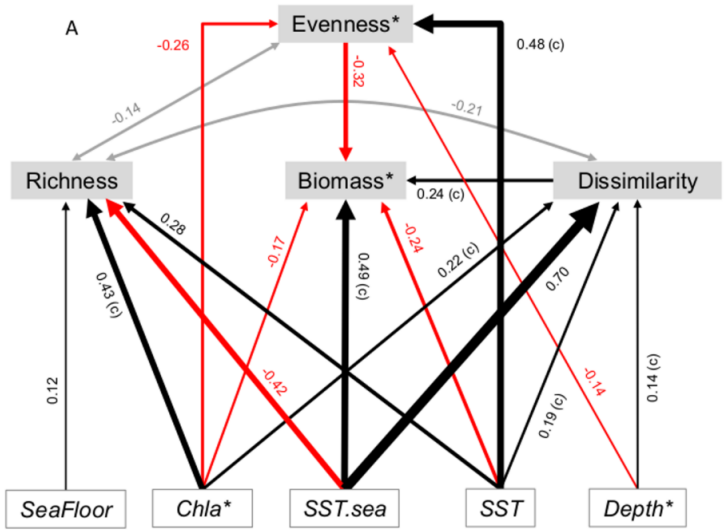


Joint species distribution models (Jetz et al. 2019)

Example output

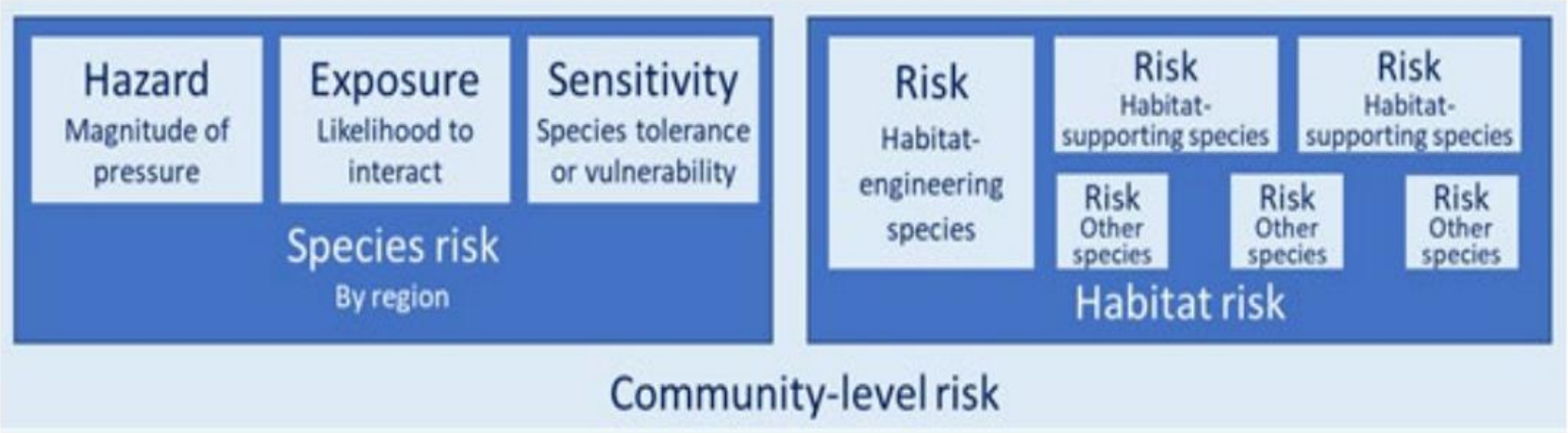


Dencker et al. 2019



Maureaud et al. 2019

WP4. Risk and vulnerability: (i) identify species and/or habitats particularly at risk in different regional European seas; (2) assess trends and patterns of community-level risk to inform potential adaptation or mitigation actions; and (3) assess spatial overlap, or potential mismatch, between hotspots of biodiversity, risks, and current marine protected areas

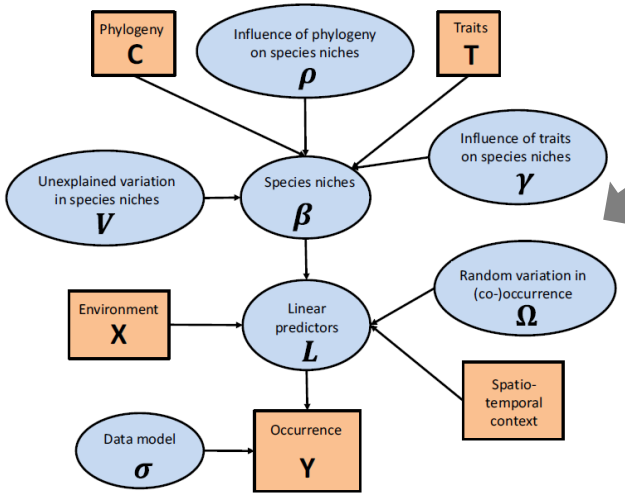


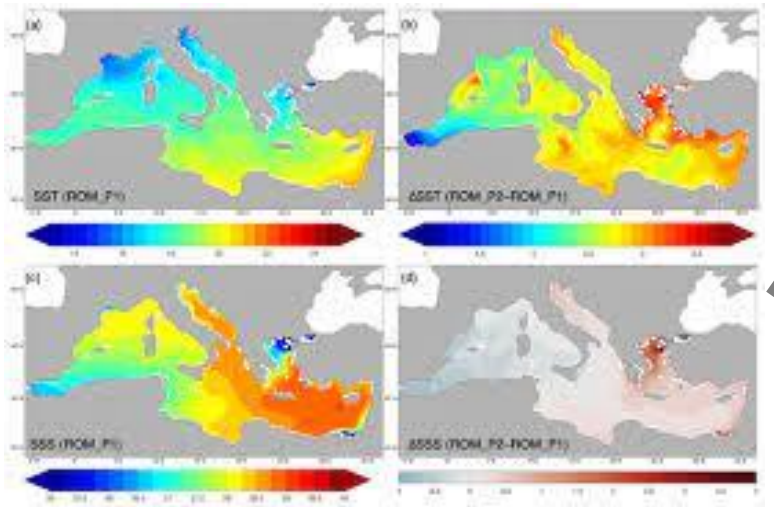
-Hierarchical risk assessment building on existing frameworks (IPCC)

WP5. Forecasting and scenario simulation: i) perform seasonal-to-decadal forecast of species distributions and biodiversity indicators, (ii) assess changes in species and/or habitats' risk and vulnerabilities, and (iii) forecast changes in ecosystem functions and services.

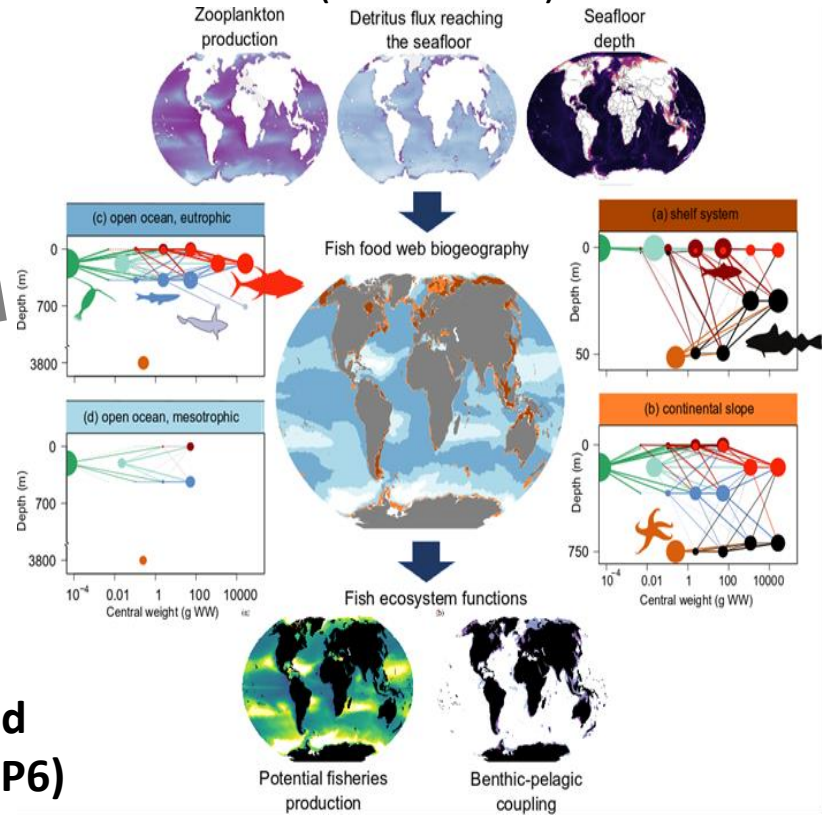
Climate/management scenarios (from WP1)

Fitted JSDMs (WP3)



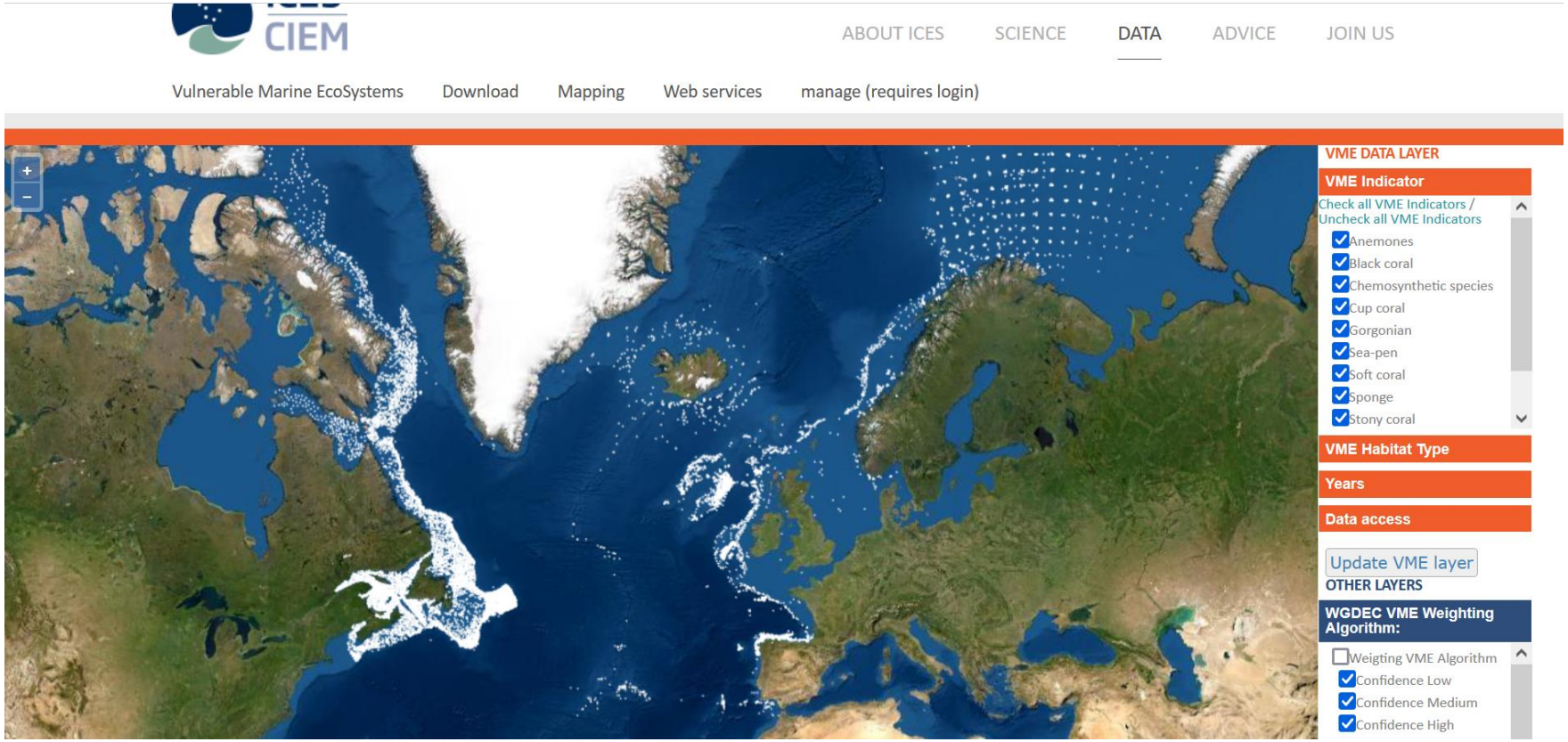


Mechanistic (trait-based) model



Model predictions of biodiversity trends and patterns as input to decision-support tool (WP6)

WP6. Decision-support and outreach to policy and training: will develop (i) **innovative decision-support tools (DST)**, (ii) a **tailored Science-Policy Interface (SPI)** for knowledge communication and synthesis and (iii) **education and outreach**

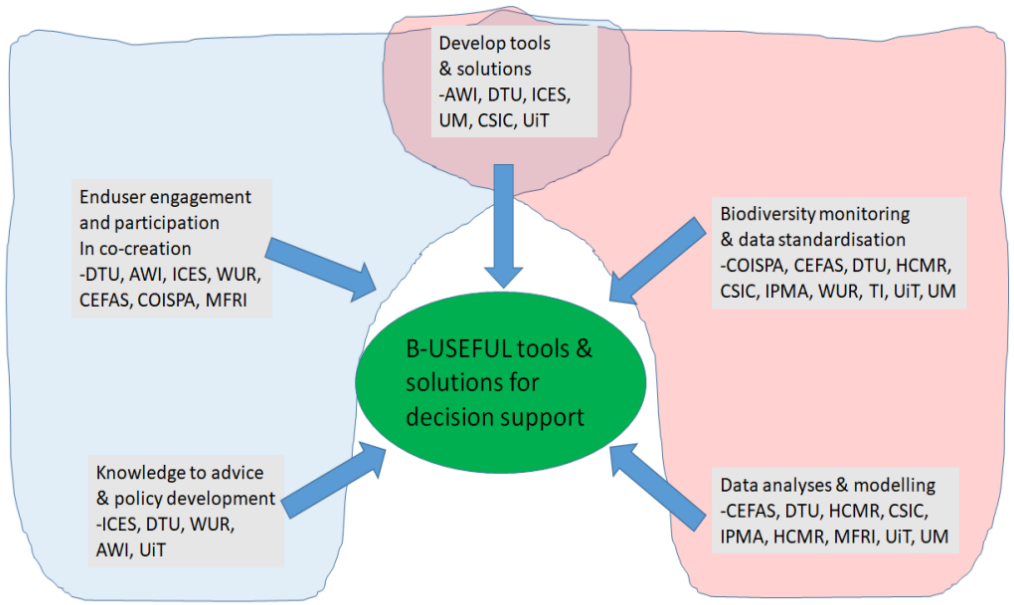


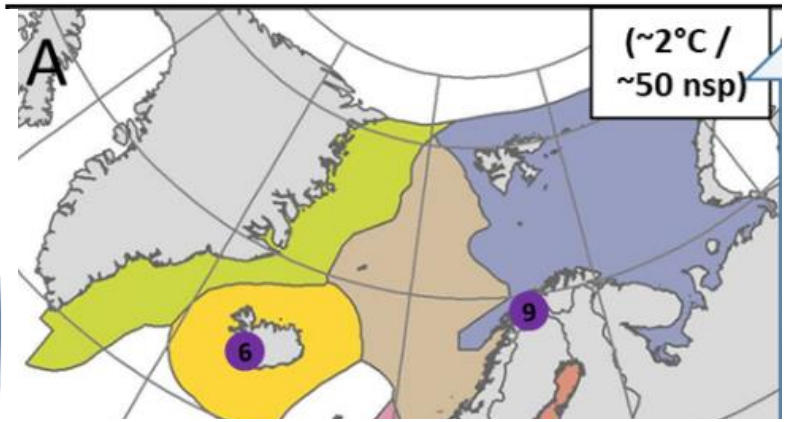
Example of DST for assessing trade-offs between MPAs and other sectors

Building on existing framework within ICES (for assessing trawling impacts on benthos)

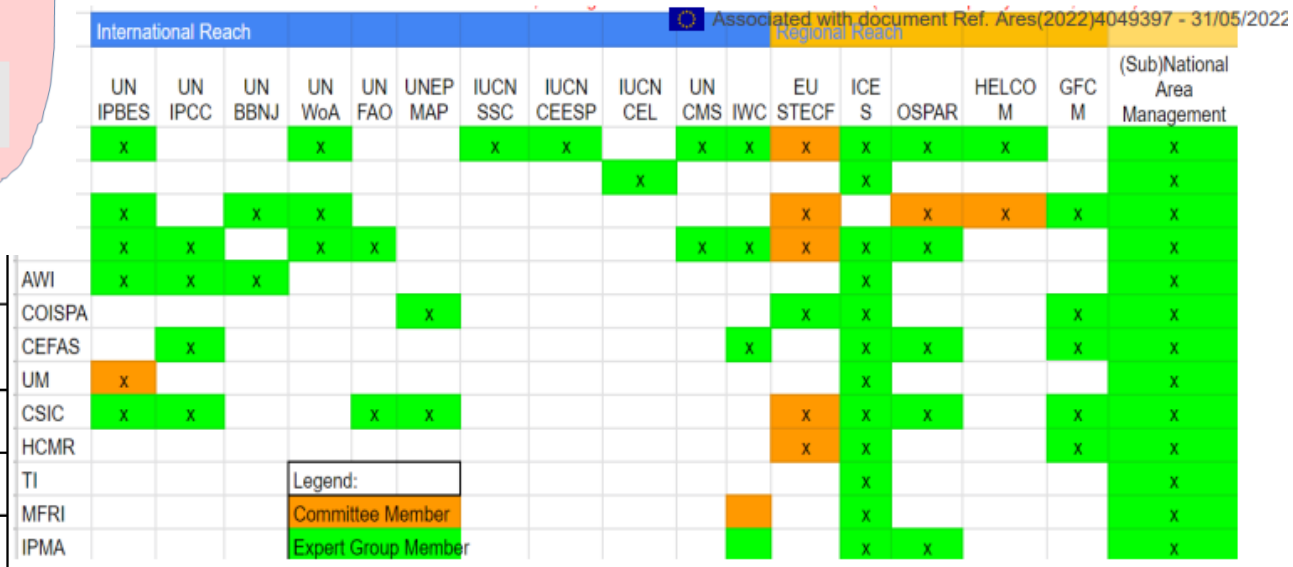
EUROGEO WORKSHOP 2022

Who are we – the consortium:





The Arctic University of Norway	NO
Portuguese Institute for Sea and Atmosphere	PT
Wageningen Research	NL
Alfred Wegener Institute	DE
Thünen Institute for Sea Fisheries	DE



Marine institutes across European Seas involved in data collection, science, management and a variety of advisory bodies.

EUROGEO WORKSHOP 2022

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marine biodiversity exploitation & conservation

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