



# MARBEFES

## *MAR*ine *B*iodiversity and *E*cosystem *F*unctioning leading to *E*cosystem *S*ervices

Jan Marcin Węśławski (general project coordinator IOPAN), Joanna Potrykus (project manager IOPAN), Julie Bremner (scientific project manager CEFAS UK), and 23 partners from 14 countries



What's there, how does it work?

What does it do for us?

What's its value?

How do we measure that?

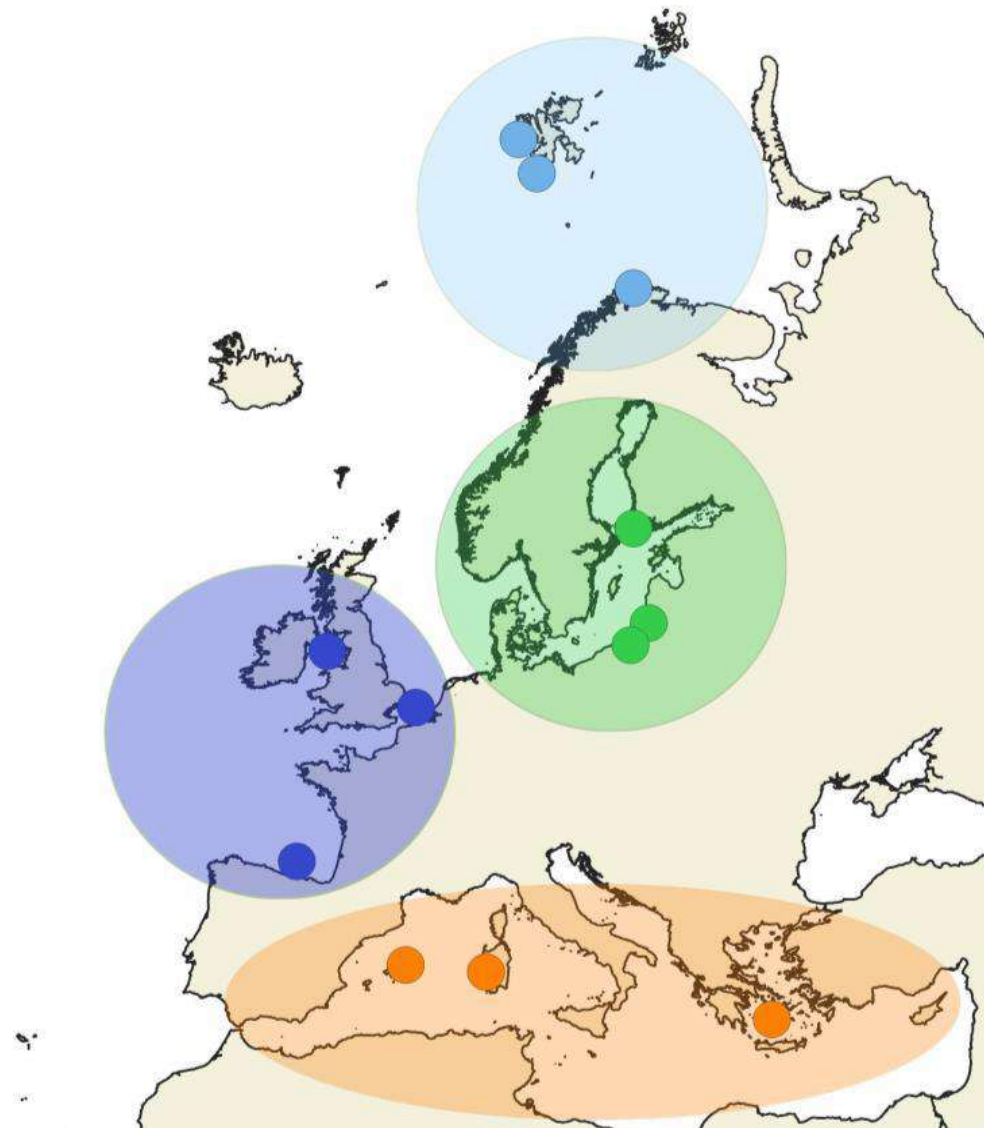
What happens if?

What/who does that affect and how?

The overall aim of MARBEFES is to determine the links between **biodiversity**, ecosystem **functioning** and the resulting ecosystem **services** and societal **goods and benefits** and to achieve ecological and socio-economic **valuation** through a validated set of innovative tools in a distributed **toolbox** to enhance policy and governance for the marine environment to secure its benefits for current and future generations.

We will progress substantially beyond the current state-of-the-art understanding of the **causes and consequences** of biodiversity decline, and the loss and gain of ecological and economic value and the **repercussions** for marine management and governance across European seas.

Geographical coverage:  
12 Broad Belt Transects  
in 4 regions



MARBEFES project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement no 101060937



**WP 1**

## Stakeholder Involvement and Governance Tools

Stakeholder co-design, regulations, policy and management

**WP 2**

## Broad Belt Transects across European Seascapes

Biodiversity characterisation, testing of tools and solutions

**WP 3**

## Biodiversity and Ecosystem Tools

Tools for biodiversity, function and services  
Innovative biodiversity monitoring

**WP 5**

## Integration and Scenarios

Synthesis and harmonisation of tools  
and data

**WP 4**

## Ecological, Social and Economic Valuation

Tools for biodiversity valuation

**WP 6**

## Upscaling/Outscaling for Governance & Stakeholders

Out-scaling tools to broader contexts (validation), upscaling lessons and practitioners' perspectives  
from BBTs to European policy

**WP 7**

## Project Coordination and Outreach

Project and data management, communication/networking, education, training and ocean literacy

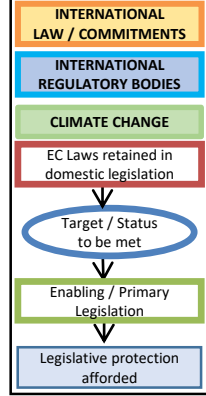
## Wide consultations with stakeholders in all analysed areas







# Regional, European and National Legislation for England and Wales covering the Liverpool Bay, Anglesey and North Wales



Licences, Consents and Authorisations; Prevent water companies discharging sewage into rivers, waterways and coastlines; Duty to ensure water companies secure a progressive reduction in the adverse impacts of discharges from storm overflows; Effective collaboration between water companies through statutory water management plans.

Waste hierarchy & Good Practice; Good disposal practice of waste; Deposit return schemes; Recycling practices; Tackle waste crime; Ban or restrict export of waste to non-OECD countries; Legally binding Environmental Improvement Plan targets to include integration, prevention, rectification at source, polluter pays and precautionary approach.

Policy and targets for tackling and responding to climate change; Net zero by 2050; Climate Change Risk Assessments (CCRA); National Adaptation Programme (NAP)

Trade and Cooperation Agreement - establishes Specialised Committee on Fisheries providing a forum for the UK and EU to discuss and cooperate on: mechanisms for in year transfers of quotas; adopting multi-year strategies e.g. on non quota stocks; data sharing; control and enforcement.

Other access regulated areas - outside existing bottom fishing

Environmental Assessment Regs  
Town and Country Planning (EIA) Regs  
Harbour Works (EIA) Regs  
Marine Works (EIA) Regs  
Licences, Consents and Authorisations  
Infrastructure Planning (EIA) Regs  
Planning Act

Applications for Nationally Significant Infrastructure Projects (NISPs) / Marine licences

Flood risk and hazard maps; flood and coastal erosion risk management; flood defence.

River Basin Management Plans (RBMPs); Heavily Modified Water Bodies & Artificial Water Bodies; Shellfish waters. (Also see UWWT Regs and Environment Act 2021)

Programme of measures; Qualitative descriptors; Ecosystem-based management approach; MPAs. The 2021 Act will complement the Marine Strategy Regs in the priority areas of biodiversity (e.g. Net Gain, LNRs), water and waste.

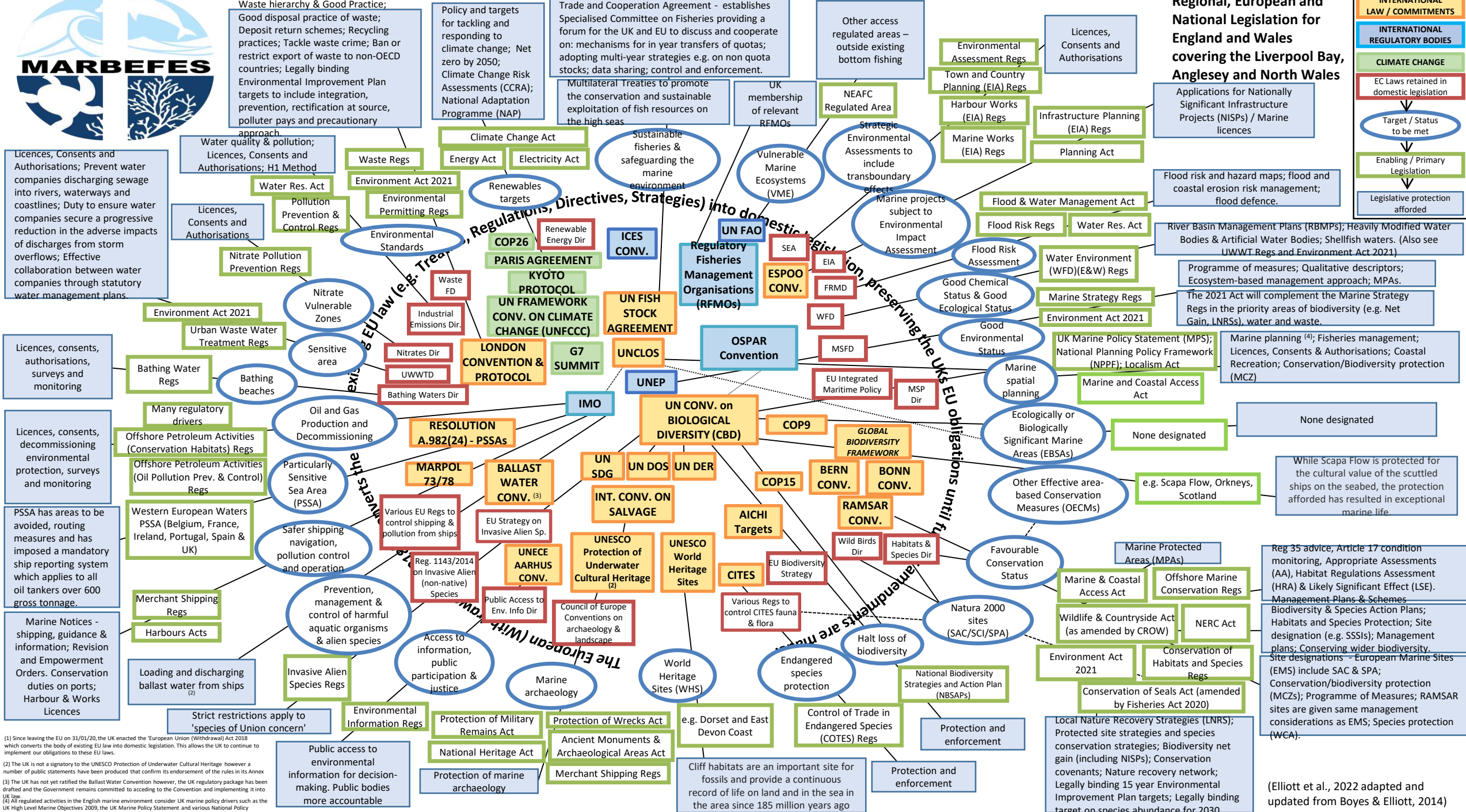
Marine planning (4); Fisheries management; Licences, Consents & Authorisations; Coastal Recreation; Conservation/Biodiversity protection (MCZ)

None designated

While Scapa Flow is protected for the cultural value of the scuttled ships on the seabed, the protection afforded has resulted in exceptional marine life

Reg 35 advice, Article 17 condition monitoring, Appropriate Assessments (AA), Habitat Regulations Assessment (HRA) & Likely Significant Effect (LSE). Management Plans & Schemes: Biodiversity & Species Action Plans; Habitats and Species Protection; Site designation (e.g. SSSIs); Management plans; Conserving wider biodiversity. Site designations - European Marine Sites (EMS) include SAC & SPA; Conservation/biodiversity protection (MCZs); Programme of Measures; RAMSAR sites are given same management considerations as EMS; Species protection (WCA).

(Elliott et al., 2022 adapted and updated from Boyes & Elliott, 2014)



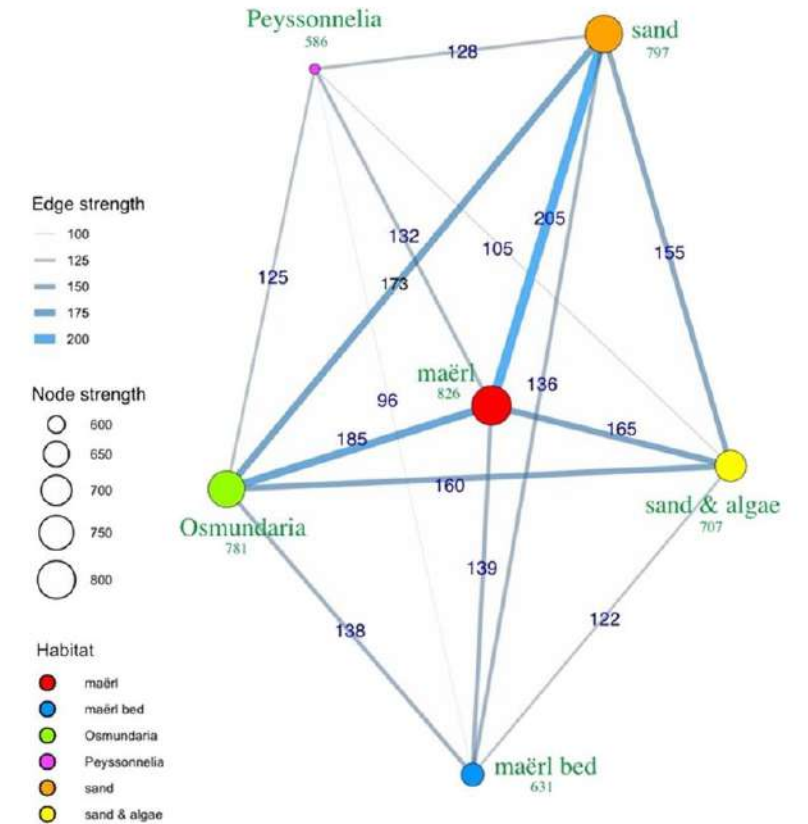
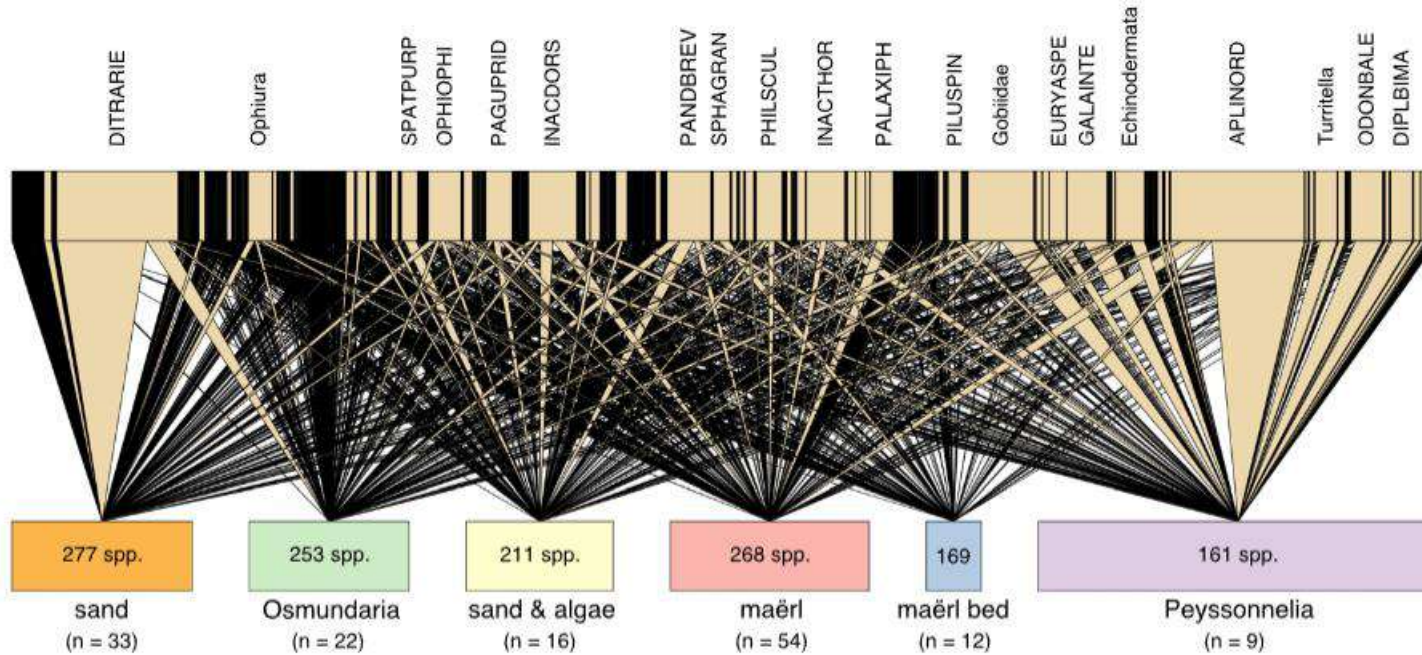
(1) Since leaving the EU on 31/01/20, the UK enacted the 'European Union (Withdrawal) Act 2018 which converts the body of existing EU law into domestic legislation. This allows the UK to continue to implement our obligations to the EU laws.

(2) The UK is not a signatory to the UNESCO Protection of Underwater Cultural Heritage however a number of public statements have been produced that confirm its endorsement of the rules in its Annex

(3) The UK has not yet ratified the Ballast Water Convention however, the UK regulatory package has been drafted and the Government remains committed to acceding to the Convention and implementing it into UK law.

(4) All regulated activities in the English marine environment consider UK marine policy drivers such as the UK High Level Marine Objectives 2009, the UK Marine Policy Statement and various National Policy Statements.

WP3	Ecological	<b>Causal paths - Bayesian Belief Network (BBN)</b>	Visualisation of the network, [tool point of contact to confirm what other data produced]	In development, awaiting instructions
WP3	Ecological	<b>Ecological Interaction Networks – structure and function</b>	Visualisation of the network and summary statistics	In development, awaiting instructions



Biodiversity and Conservation (2023) 32:1271–1290  
<https://doi.org/10.1007/s10531-023-02552-8>

ORIGINAL RESEARCH



## The continental shelf seascape: a network of species and habitats

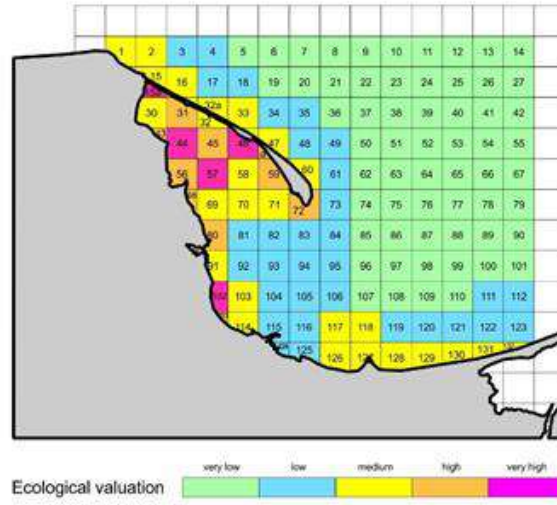
Silvia de Juan<sup>1</sup> · Andres Ospina-Alvarez<sup>1</sup> · Hilmar Hinz<sup>1</sup> · Joan Moranta<sup>2</sup> · Carmen Barbera<sup>3</sup>



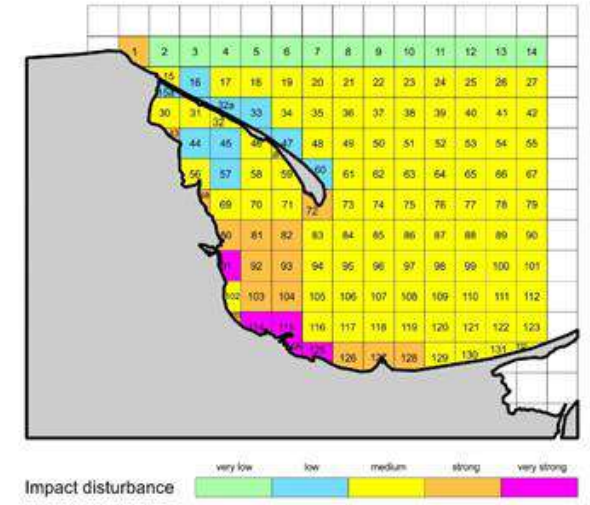
Three different ways of ecosystem valuation:  
Ecological value (no reference to human use)  
Socio cultural valuation  
Socio-economic valuation

All three above, biodiversity and human impact are not directly correlated-

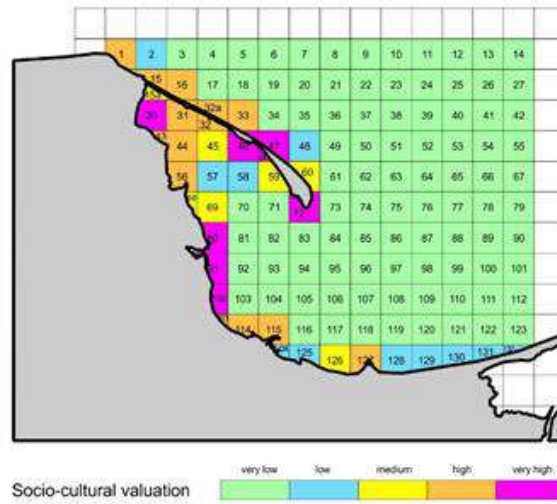
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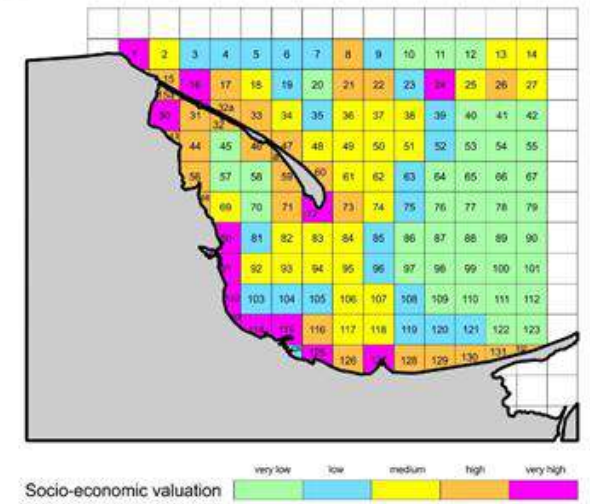
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# Publications, public events, popular science picnics etc...

## Videos

Last update: 04/08/2024 by IO PAN Share

Here you will find our movies!



**Projekt MARBEFES**  
**BIOBLITZ**  
Sopot 2023

Obejrzyj w  YouTube

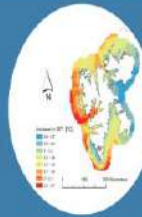
BioBlitz - is a special event, where biologists are gathered in one place accessible to the public to identify as many as possible species within 24 hours. This is both important scientific data collected by professionals and a public event that shows how rich is the biodiversity even in the most trivial sites. Important observation is how many specialists one needs to identify all organisms - from unicellular algae to bats and fish. No one knows all the species. Within MARBEFES project we want to organise such events in all of the four regions - Sopot (June 2023, Tromsø June 2024, Dublin 2025 and Sardinia 2025). The first from the four planned MARBEFES BioBlitz actions was organized at the Baltic sea shore in Sopot, Poland. The key idea is to find coastal site that is accessible and known for the wide public - ideally a public park at the seaside. This was the case in Sopot with "Dark Białogóra" that covers coastal bogal dunes.



### New MARBEFES article

Forty years of warming:  
Environmental change in marine  
coastal habitats on Svalbard  
between 1981 and 2022

Jan Marcin Węśławski & Jacek A. Króćki



DOI: 10.24425/ppr.2024.149207

**TITLE:** Forty years of warming:  
Environmental change in marine  
coastal habitats on Svalbard between 1981  
and 2022

**LEAD AUTHOR:** Jan Marcin Węśławski

**PUBLISHED IN:** Polish Polar Research

**DOI:** [10.24425/ppr.2024.149207](https://doi.org/10.24425/ppr.2024.149207)

### NEXT MARBEFES ARTICLE!

Taxonomic and functional diversity  
of nematode fauna: two sides of  
the same coin in the ecological  
quality assessment of transitional  
environments

Eleonora Grassi, Linda Catani,  
Paolo Magni, Maria Flavia Gravina,  
Federica Semprucci



ESTUARINE, COASTAL AND SHELF SCIENCE  
VOLUME 295, 5 DECEMBER 2023, 108550

**TITLE:** Taxonomic and functional diversity of  
nematode fauna: two sides of the same coin in the  
ecological quality assessment of transitional  
environments

**LEAD AUTHOR:** Eleonora Grassi

**PUBLISHED IN:** Estuarine, Coastal and Shelf Science

**DOI:** <https://doi.org/10.1016/j.ecss.2023.108550>



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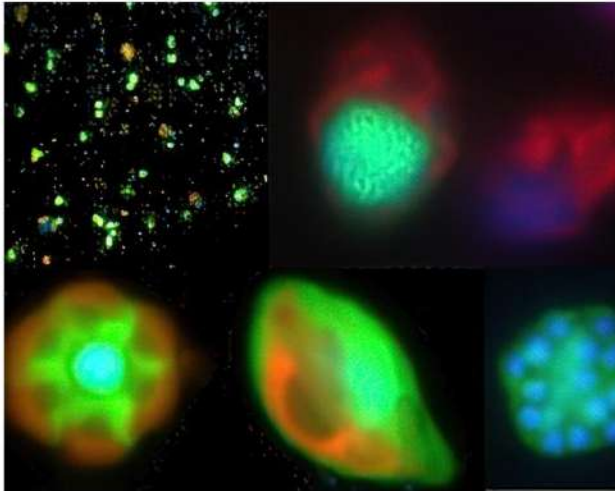
# Promoting woman in marine research – „Woman view of the sea”

Theme 21  
**Fascinating marine micrororganisms in the seawaters**

Presented by  
 dr hab. **Katarzyna Piwosz**  
 Morski Instytut Rybacki PIB, Gdynia



Sickness, decomposition, death are usual connotations with microbes. This opinion comes from our anthropocentric view of the world. Microbs are life, they produce every second molecule of oxygen that we breathe. First living form on earth was a microb, and most likely the last will be microb as well. Microbs i.e. bacteria, fungi and protists are key and very little known element of the marine ecosystem.



**WOMAN VIEW OF THE SEA**

INSTYTUT OCEANOLOGII PAN  
 ART INKUBATOR w SOPOCIE  
 PAŃSTWOWA GALERIA SZTUKI w SOPOCIE



Theme 21  
**Fascinating marine micrororganisms in the seawaters**

**Edyta Kołakowska**, Gdynia



I am artist, who was graduated as oceanographer. I am leader of the Emocjean Edyta Kołakowska Mark, and use to create products and art inspired by the Sea, what reflects my personal experience and knowledge about the marine realm.



**Vitamin Sea**,  
 acrylic on canvas

My work presents microorganisms in the abstract form. Captivating colors and forms may show that microorganisms are as important in the sea as vitamins in human life. Inspiration for this work comes from the colored blown glass installations.

*My action towards sustainability: reduced water intake, recycled canvas*

**WOMAN VIEW OF THE SEA**

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 ART INKUBATOR w SOPOCIE  
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