



SEAwise UPDATE

at NWWAC meeting, 2 July 2024

SEAwise has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000318



Project itself

Progress



Next step?

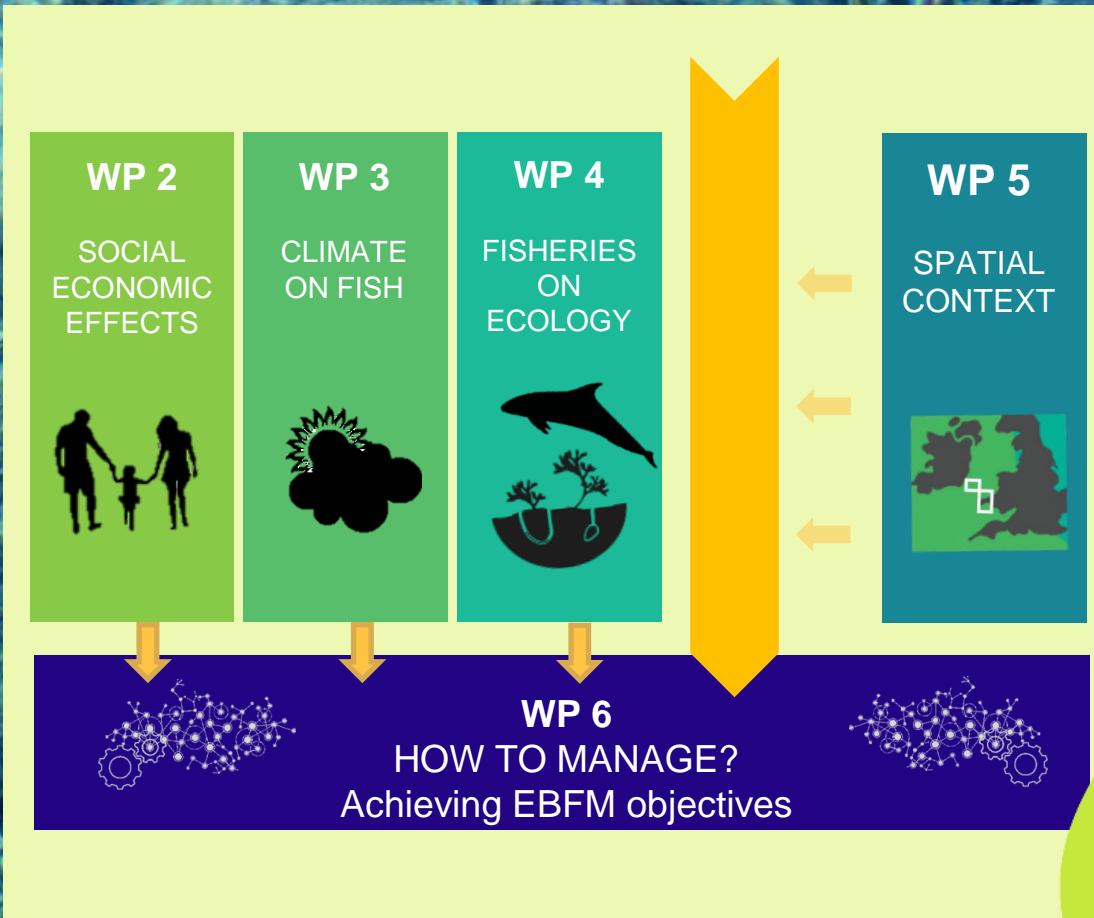
OBJECTIVE

*Towards effective implementation
of Ecosystem Based Fisheries
Management (**EBFM**)*

4 key challenges

Oct 2021 – 2022 – 2023 – July 2024

=> Oct 2025




1.
**Lack of clear
and widely
accepted
priorities**


2.
**Gaps in
existing
knowledge**

3.
**Lack of
accurate and
adaptive
methods**

4.
**Lack of
end-user
driven advice**



HOMEABOUTTHEMESCASE STUDIESSEAWISE NETWORKRESULTSNEWS



RESULTS

The SEAwise team are working to understand stakeholder needs, address knowledge gaps, and produce tools to facilitate the implementation of Ecosystem Based Fisheries Management in Europe. You can explore the results of our Work Themes as they are published, and stay up to date with recent news and updates via our blog.

ALL (28)

COMMUNICATION

SOCIAL & ECONOMIC EFFECTS

ECOLOGICAL EFFECTS ON FISHERIES

SPATIAL MANAGEMENT IMPACTS

ECOLOGICAL EFFECTS OF FISHERIES

EVALUATION OF FISHERIES MANAGEMENT STRATEGIES

Scoping workshop: Priorities

~30 Deliverable reports

Update Knowledge & methods

EBFM tool

Spring 2023



Co-design workshop

WELCOME TO THE SEAWISE EBFM TOOL

This SEAwise EBFM Tool is designed to allow stakeholders to explore the key results of the SEAwise project in an accessible, open access format. The tool can be used to gain a better understanding of the trade-offs associated with different fisheries management interventions, under different climate change scenarios, across four Case Study Regions – the North Sea, the Baltic Sea, the Mediterranean Sea, and Western Waters.

It will help you to assess these trade-offs across social, economic and ecological dimensions in each of these regions, and lead you to further information on each of these topics. In doing so, the tool is designed to support the effective implementation of Ecosystem Based Fisheries Management (EBFM) in Europe.

EBFM is an approach to fisheries management that recognises the need to consider the social and economic benefits arising from fisheries (such as food provision, employment, and cultural heritage) as well as the impacts they have on the environment, and to balance these. While the benefits of EBFM are widely recognised, a number of core challenges currently pose barriers to its effective implementation across Europe. SEAwise has sought to identify and address these challenges.

To do this, SEAwise has developed the EBFM Tool, which is designed to help you explore the key results of the SEAwise project in an accessible, open access format.

WESTERN WATERS > TABLE DATA

Ranging from the semi-enclosed Irish Sea to the exposed continental shelves of the Celtic Sea and Bay of Biscay, the Western Waters region is characterised by its diverse marine environments that play host to a broad range of fish stocks and fisheries.

SEAwise has analysed the implications of environmental change on fished species, and assessed how different management measures designed to deal with such changes could impact fisheries and the wider marine ecosystem – predicting their influence on catches, carbon emissions, seafloor impacts, fishing-related litter, and bycatch rates. Alongside this, we have examined the potential effects of management strategies on stakeholders.

EBFM IN THE WESTERN WATERS

The diversity of stocks, fisheries and fleets in this region renders effective management challenging – a situation which is further complicated by potential changes to fishing rights following Brexit, changing environmental conditions, and reduced fish growth and reproduction in the area.

By integrating social, ecological, and economic considerations into our predictions, SEAwise has worked to offer well-informed recommendations for the implementation of Ecosystem-Based Fisheries Management in the Western Waters.

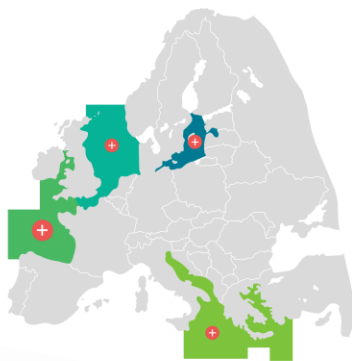
For more information on the four SEAwise Case Study regions, hover over the name of the region, or click on a section of the map to enter the SEAwise EBFM tool.

BALTIC SEA

NORTH SEA

WESTERN WATERS

A subdivision of the Northeast Atlantic extending from the west coast of Ireland and Scotland to the Strait of Gibraltar, the Western Waters are characterised by diverse marine environments, a broad range of fish stocks and multinational fisheries, rendering effective management challenging.



FISH STOCKS



WESTERN WATERS > TABLE DATA

HEADING HERE

About what the user is seeing below and what they can do with it. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

	2025	2030	2035
Fish Stocks			
Biodiversity			
Habitats			
Communities			
Revenue			
Well being			

How to navigate the EBFM table:

Apply your chosen filter below to refine the information in the table. Clicking the expand button next to each icon on the left hand side will allow you to explore each topic in more depth.

FILTER ONE:

CLIMATE CHANGE SCENARIO A
CLIMATE CHANGE SCENARIO B

FILTER TWO:

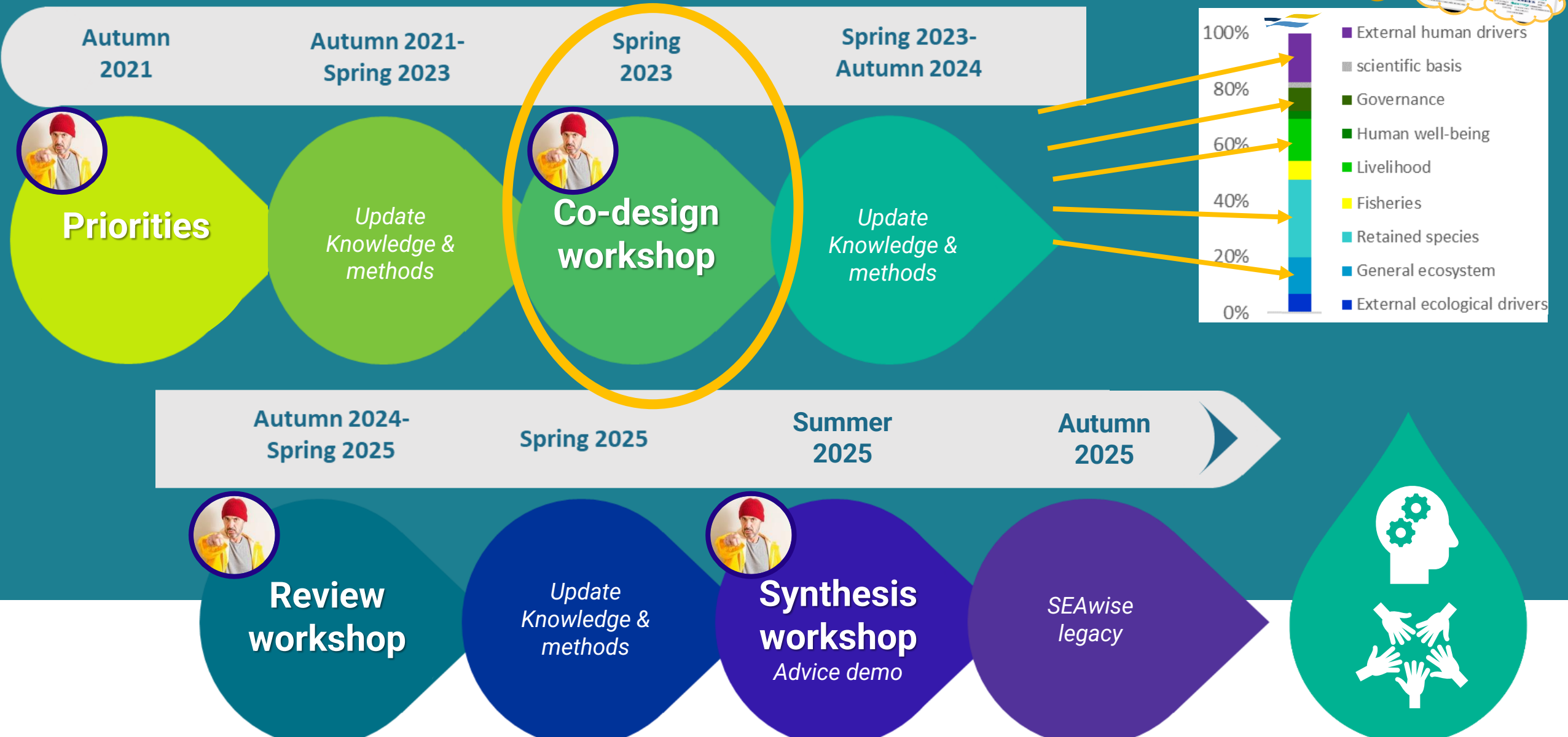
STATUS QUO
STRICTER RULES
FLEXIBLE MIDDLE

RESET TO ORIGINAL FILTERS

EXPLORE OUR DATA IN DETAIL

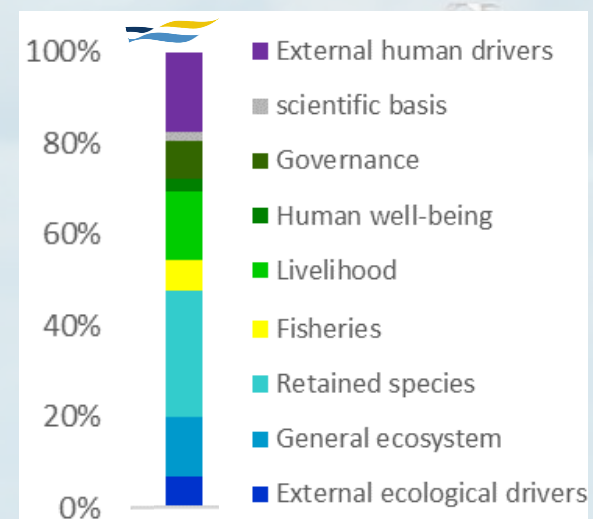
CONTINUE TO END OF TOOL

Timeline on interactions?



Project itself

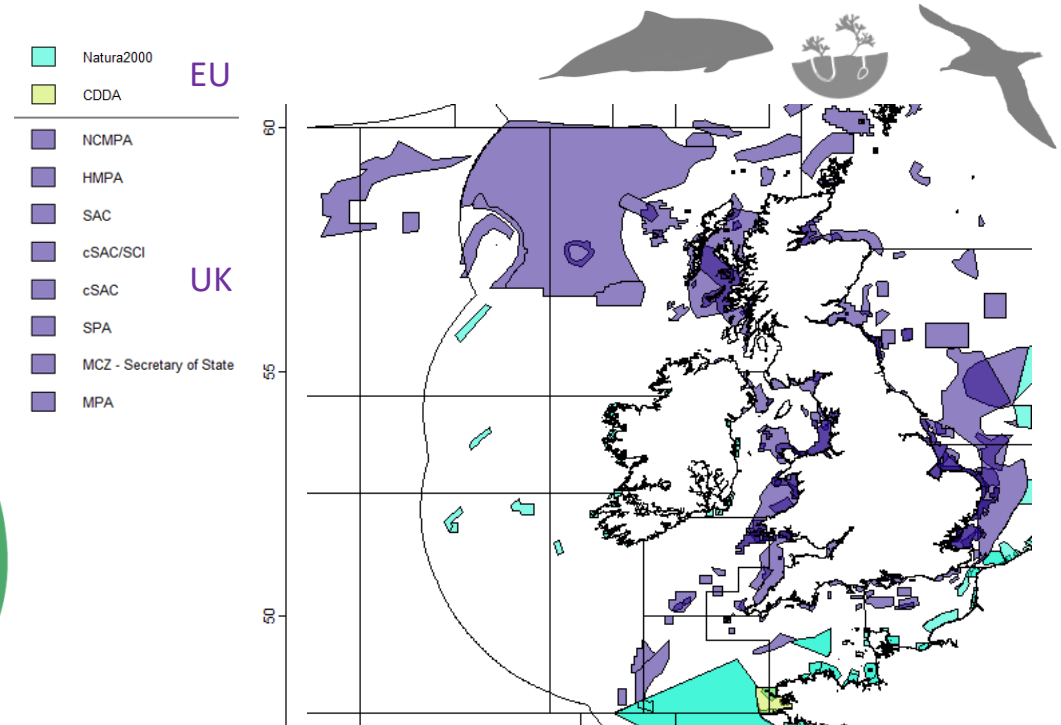
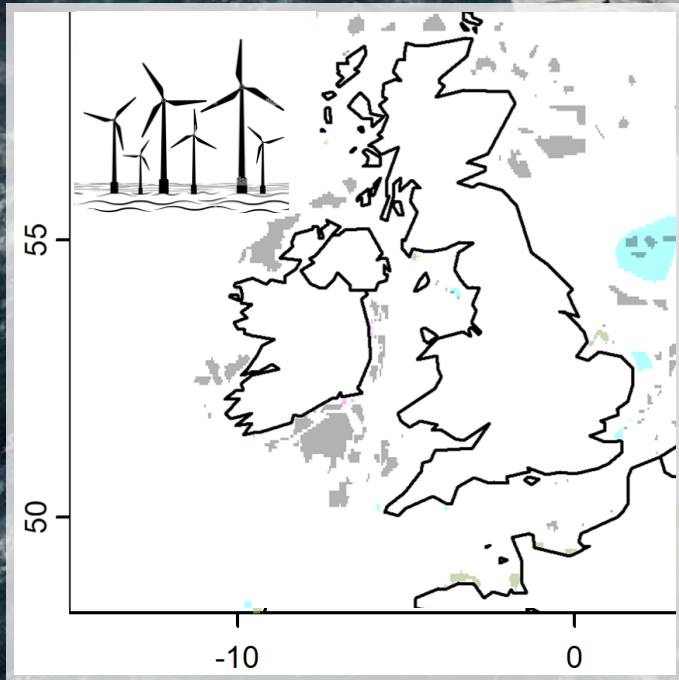
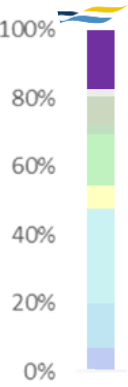
Progress



Next steps?

EXTERNAL HUMAN DRIVERS

⇒ Fishing grounds lost to ORE + MPA
Biggest issue = **lack of information**





Exploring the viability of innovative fishing technologies as an alternative to bottom trawling in European marine protected areas



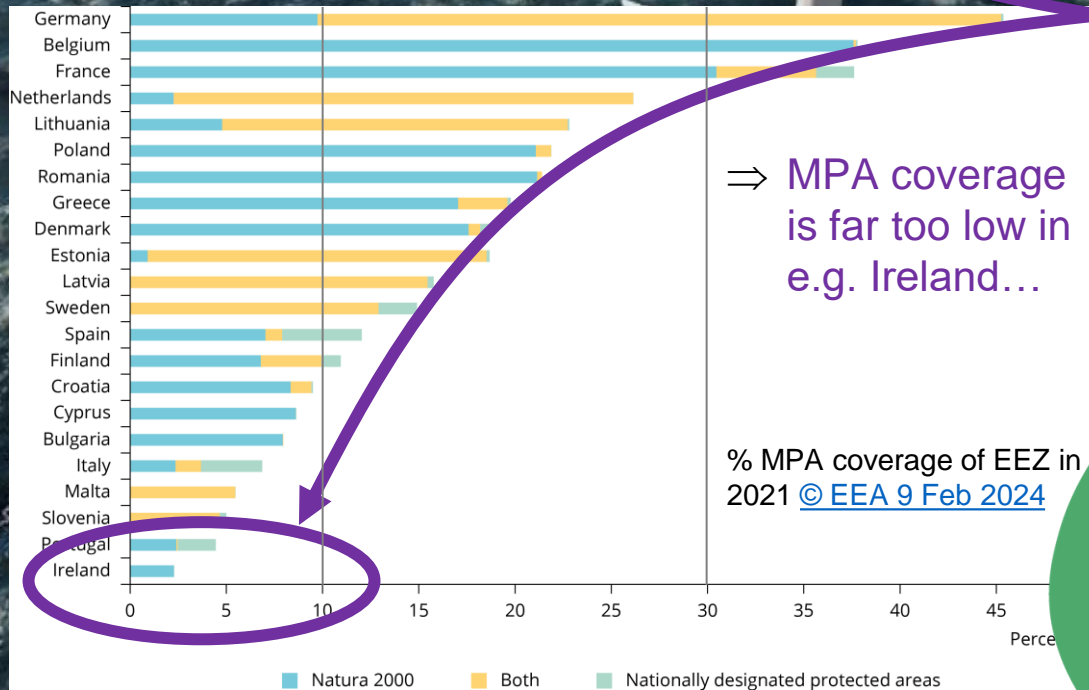
An environmental and socioeconomic analysis

EPRS | European Parliamentary Research Service

Scientific Foresight Unit (STOA)
PE 762.843 – June 2024

10% strictly protected

30% protected



⇒ MPA coverage is far too low in e.g. Ireland...

% MPA coverage of EEZ in 2021 © EEA 9 Feb 2024

EXTERNAL HUMAN DRIVERS

⇒ Fishing grounds lost to ORE + MPA

Biggest issue = **lack of information**

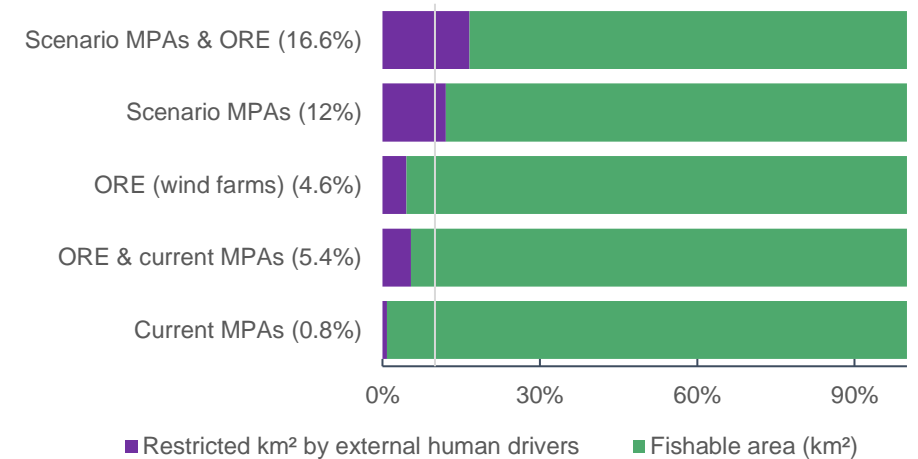
Plausible **scenarios**

- Current MPA restrictions
- Future MPA restrictions using conservative scenarios e.g. trawling affects seabed, longlines affect birds

More restrictions are plausible.

Uptake of SEAwisE results

% lost fishing grounds in the Celtic Seas

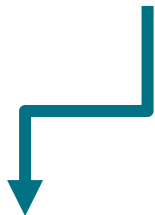


⇒ More details: [Bastardie et al 2023 \(p 32\)](#)

SEAWISE

GOVERNANCE: generic + case specific

Online survey



SURVEY ON EFFECTIVENESS OF EU REGIONAL FISHERIES MANAGEMENT



Are you working within EU Regional Fisheries Management? If so, we would like to hear from you!

Objective: to better understand how people/organisations within fisheries relate, interact & work with each other across national boundaries - at the level of the regional seas - in Europe to deliver successful fisheries management.

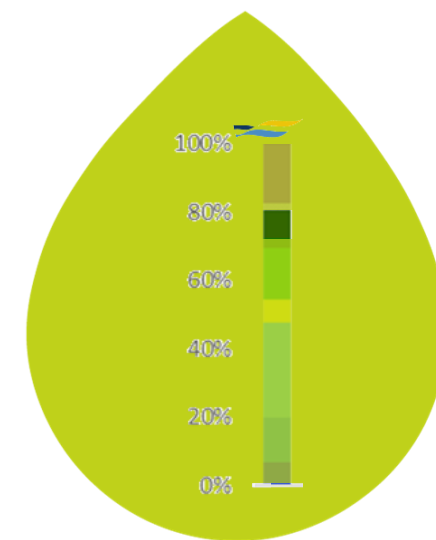


Find out more at:
www.bit.ly/SEAwise-survey

This survey is being administered by the Centre for Blue Governance (CBG) at Aalborg University (AAU), one of the 24 partners in the EU-funded SEAwise project



SEAwise has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101000318



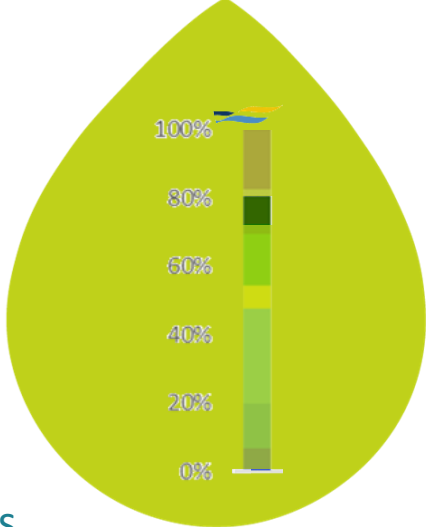
GOVERNANCE: generic + case specific

Online survey

In-depth interviews

Cases => fisheries restriction in MPAs
under 10% highly and 30% protection regimes

- ✓ FR MPA in Bay of Biscay
- ✓ DK MPA in North Sea: Gule Rev and Jyske Rev
- ✓ BE MPA in North Sea: Vlaamse Banken



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LIVELIHOOD

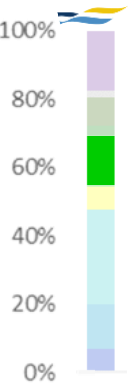
Social objectives of CFP not operationalized

Incremental steps

Case
demonstrations
& uptake

Linking fishing fleets to community profiles, e.g. 3 community profiles in France -> STECF

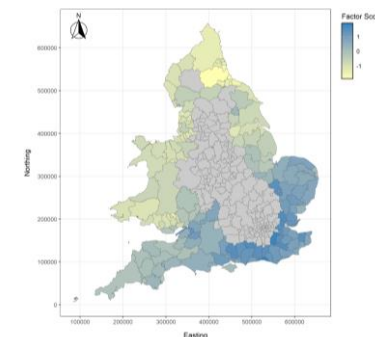
Mapping social engagement and reliance of English and Welsh districts on fisheries



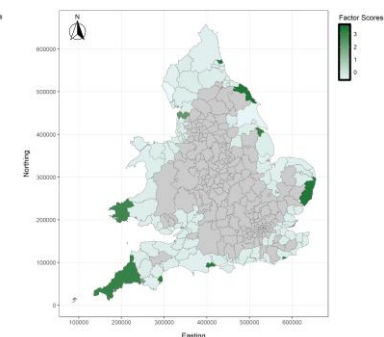
⇒ More details:
SEAwise Deliverable
report 2.6 (forthcoming)



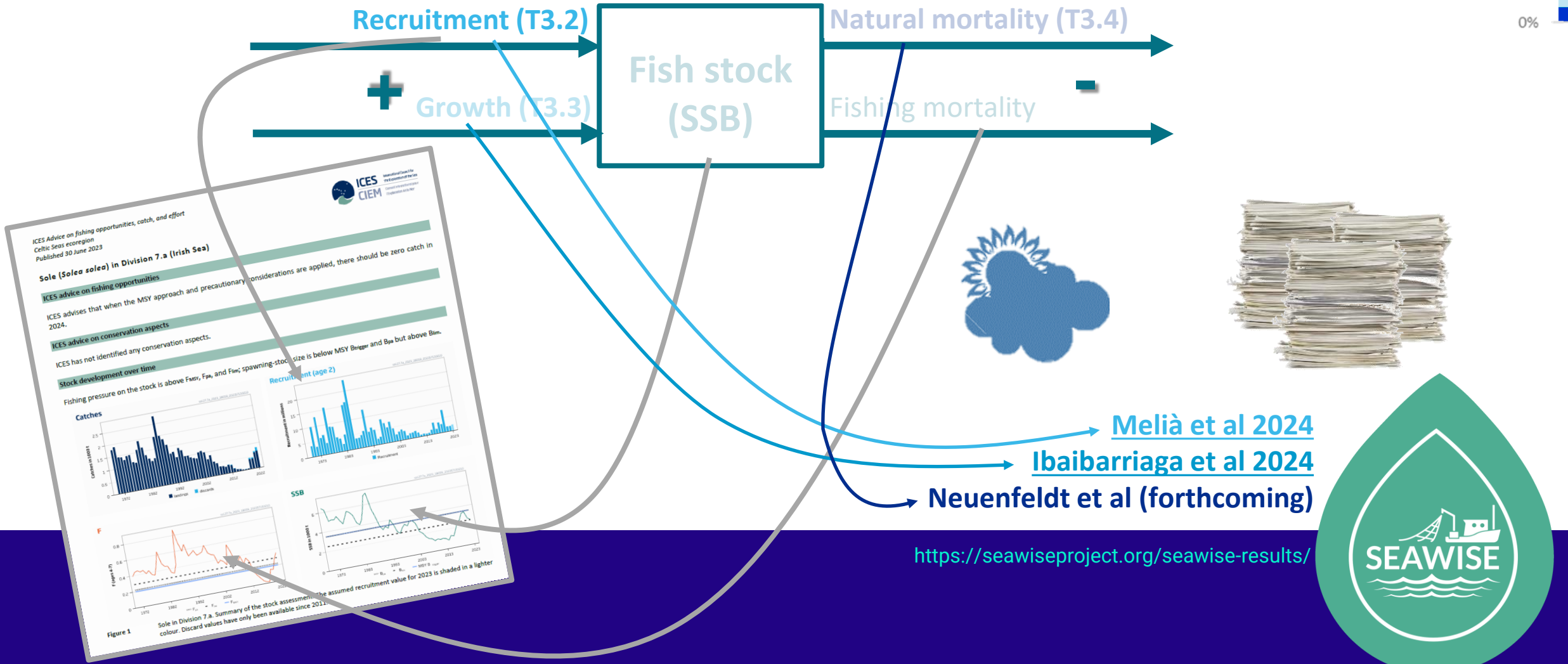
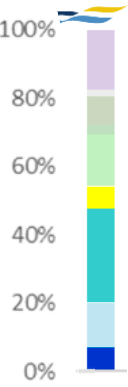
Employment opportunity



Fishing engagement



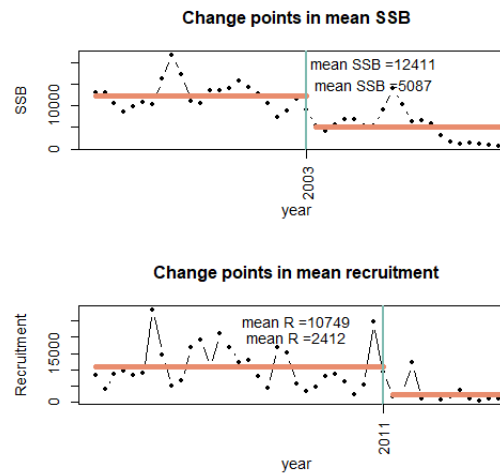
RETAINED SPECIES, FISHERIES & EXTERNAL ECOLOGICAL DRIVERS



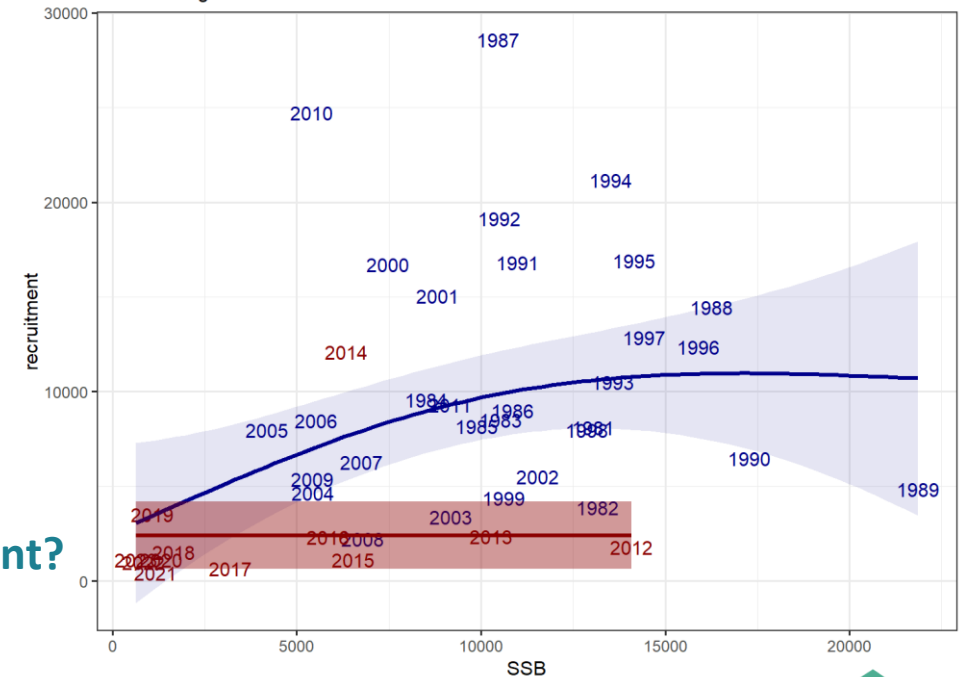
RETAINED SPECIES, FISHERIES & EXTERNAL ECOLOGICAL DRIVERS

EXAMPLES

Recruitment



Stock-Recruitment smoothers before and after 2011 Recruitment change
Is there a regime shift to low recruitment of Celtic Seas cod?



frontiers | Frontiers in Marine Science

Can regime shifts in reproduction be explained by changing climate and food availability?

Maria Tirronen^{1,†}, Jochen Depestele^{2†} and Anna Kuparinen¹

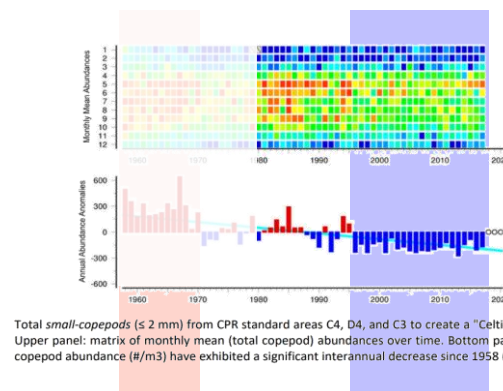
¹Department of Biological and Environmental Science, University of Jyväskylä, Jyväskylä, Finland.
²Fisheries and Aquatic Production, Flanders Research Institute for Agriculture, Fisheries and Food (ILVO), Oostende, Belgium

Melià et al 2024

<https://seawiseproject.org/seawise-results/>

Climate effects on Celtic Sea recruitment?

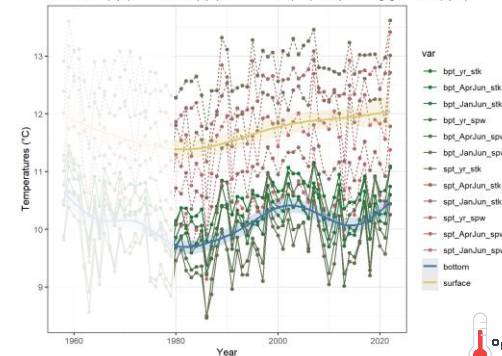
- ⇒ Zooplankton & Temp. changes
- ⇒ Biological data = shorter time series



Total small-copepods (≤ 2 mm) from CPR standard areas C4, D4, and C3 to create a "Celtic Seas" average for the region. Upper panel: matrix of monthly mean (total copepod) abundances over time. Bottom panel: annual anomalies of total copepod abundance (#/m3) have exhibited a significant interannual decrease since 1958 ($p < 0.01$).

© ICES ecosystem overviews

ORAS-5 temperature estimates averaged at seabed (bpt) or surface (spt), stock area (stk) or spawning grounds (spw)

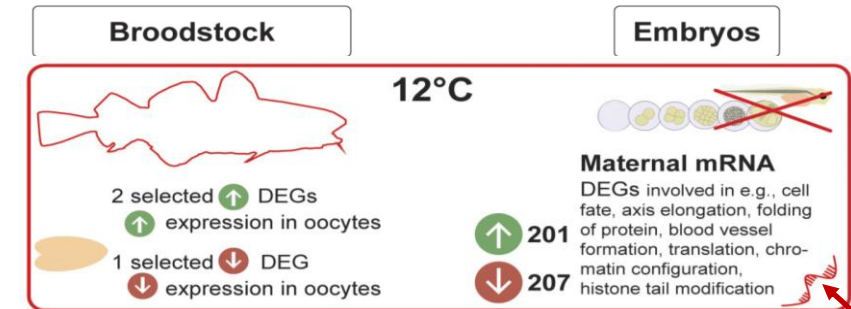


SEAWISE

RETAINED SPECIES, FISHERIES & EXTERNAL ECOLOGICAL DRIVERS

EXAMPLES

Recruitment



No embryos > 12°C
Skaerven et al 2024

EXAMPLES

Natural Mortality

Presentation by
Pierre-Yves Hervann

Climate effects on Celtic Sea recruitment?

- ⇒ Zooplankton & Temp. changes
- ⇒ Biological data = shorter time series

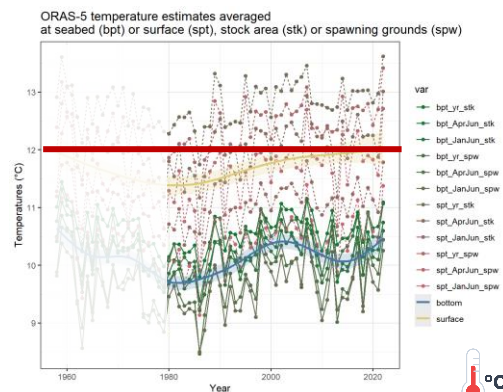
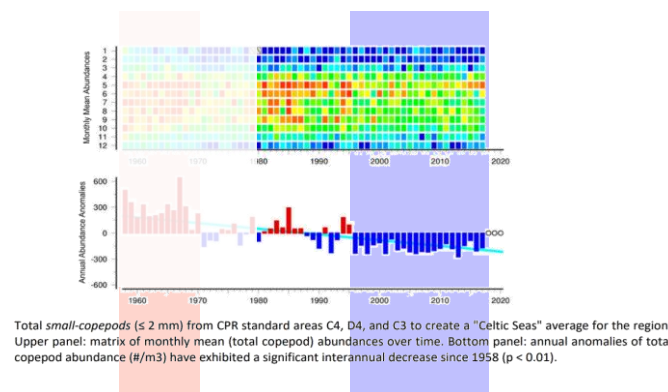
⇒ Correlative relationships

WP 6
HOW TO MANAGE?

Melià et al 2024

<https://seawiseproject.org/seawise-results/>

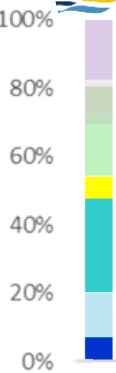
Neuenfeldt et al (forthcoming)



NORTH WESTERN
WATERS
ADVISORY COUNCIL

NWWAC webinar on climate change impacts
on cod in the Celtic Sea

Wednesday, 12 June 2024



RETAINED SPECIES, FISHERIES & EXTERNAL ECOLOGICAL DRIVERS

EXAMPLES

Growth

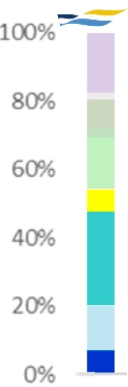
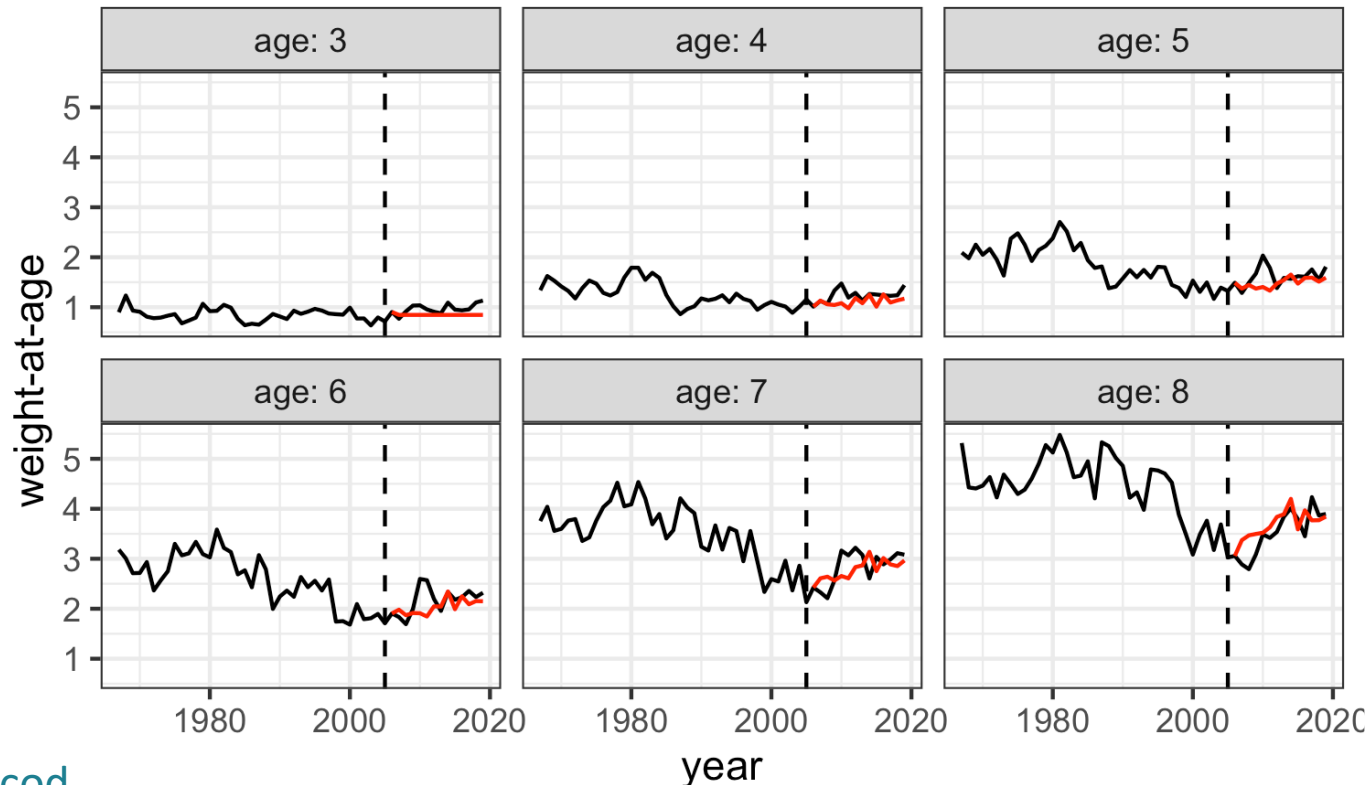


Can we go beyond analytics?

⇒ Can we forecast growth?

⇒ Stock with forecast potential:

- CS: had, meg, sol7e, whg, sol7fg, cod
- IrS: cod, had, sol, whg, ple



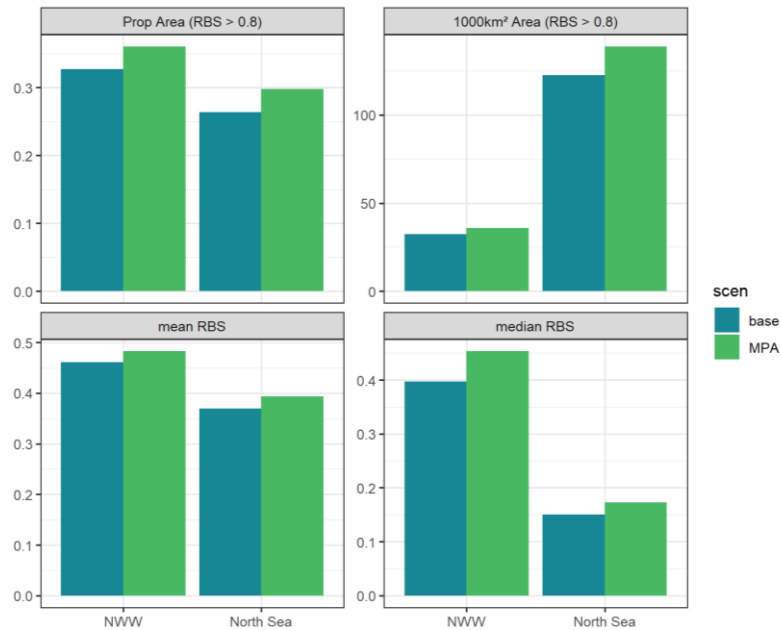
Ibaibarriaga et al 2024

<https://seawiseproject.org/seawise-results/>



GENERAL/BENTHIC ECOSYSTEM

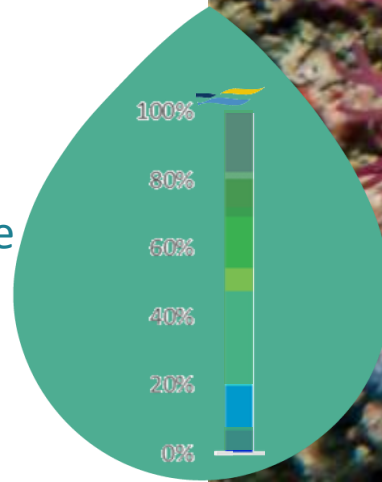
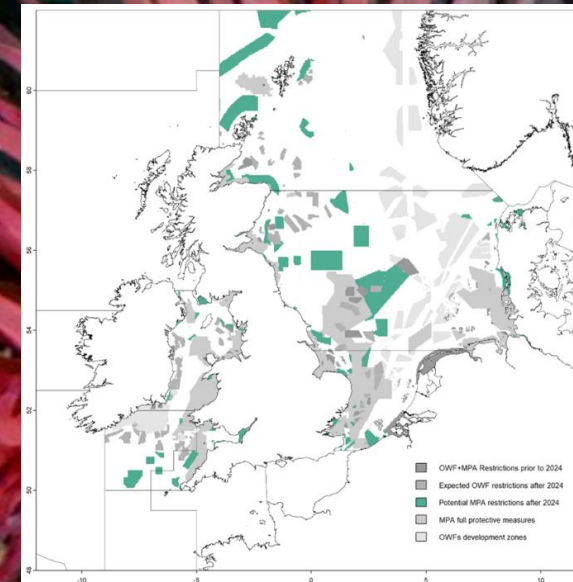
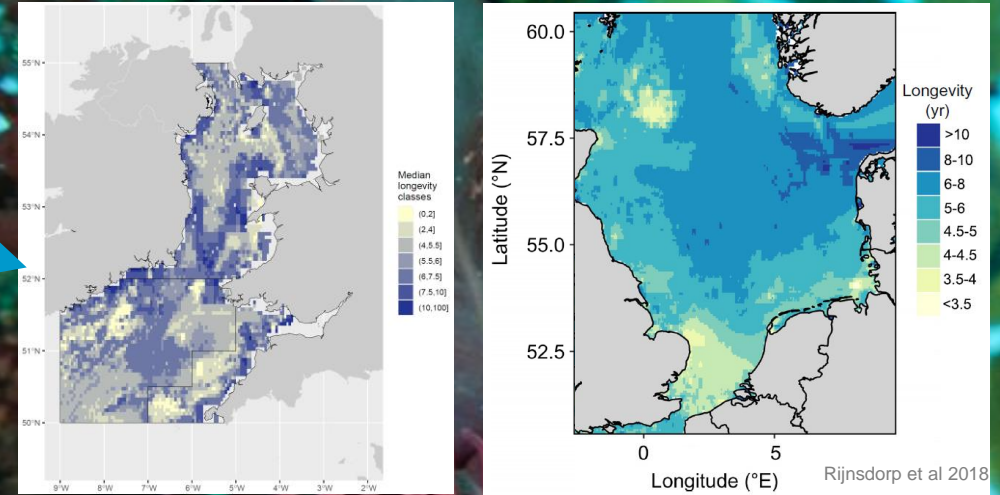
Sensitivity maps of macrofauna + epifauna



BEFORE and AFTER MPA scenario:

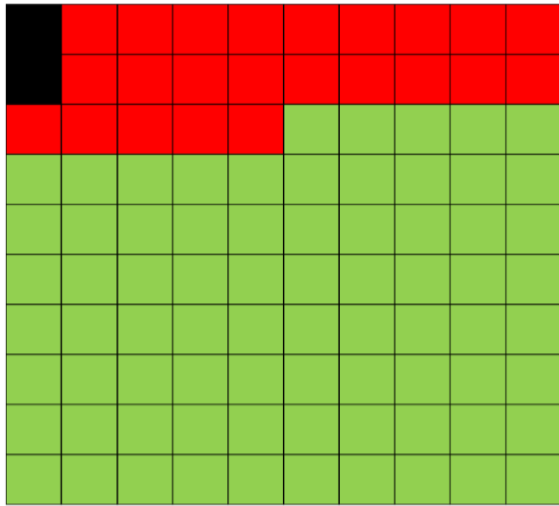
- Regional scale: modest changes in benthic state
- Local scale: Good state within MPA

macrofauna



GENERAL/BENTHIC ECOSYSTEM

Good Environmental State for MSFD D6

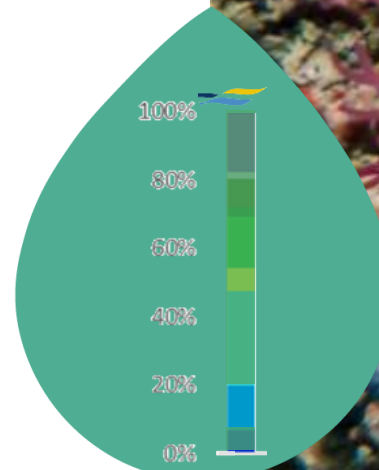


D6C4: Extent of loss (2%)
D6C5: Extent adversely affected (23%)
D6C5: Extent not adversely affected (i.e. in good quality/condition) (75%)

With RBS < 0.7

- Two habitats are OK: 23% adversely affected
- Other habitats not OK: substantial effort reductions or displacements required for regional improvements (e.g. 75% of Offshore circalittoral sand is adversely affected)

- ⇒ The selection of the RBS threshold will be impactful
- ⇒ The choice of the indicator is to be discussed

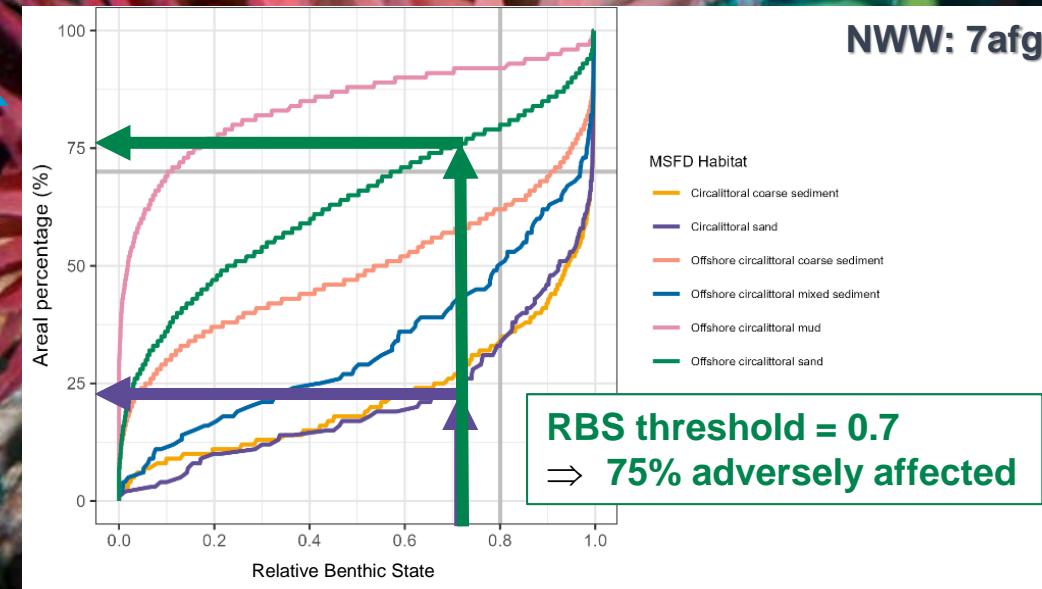
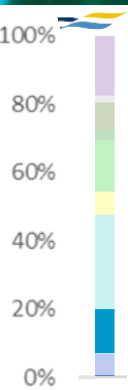


European Commission

Threshold values for good environmental status Sea-floor integrity (Descriptor 6)

Alice Belin
DG ENV.C2, TG Seabed chair

NWWAC, 4 July 2023



Project itself

Progress



Next step?



Next step ?

➡ Request for participating
in the **review workshop** in March 2025

Modelled scenarios of fisheries management

- Climate change effects on commercial fish stocks: RCP4.5, RCP8.5
- Mixed fisheries using F_{msy} , F_{msy} ranges , ...



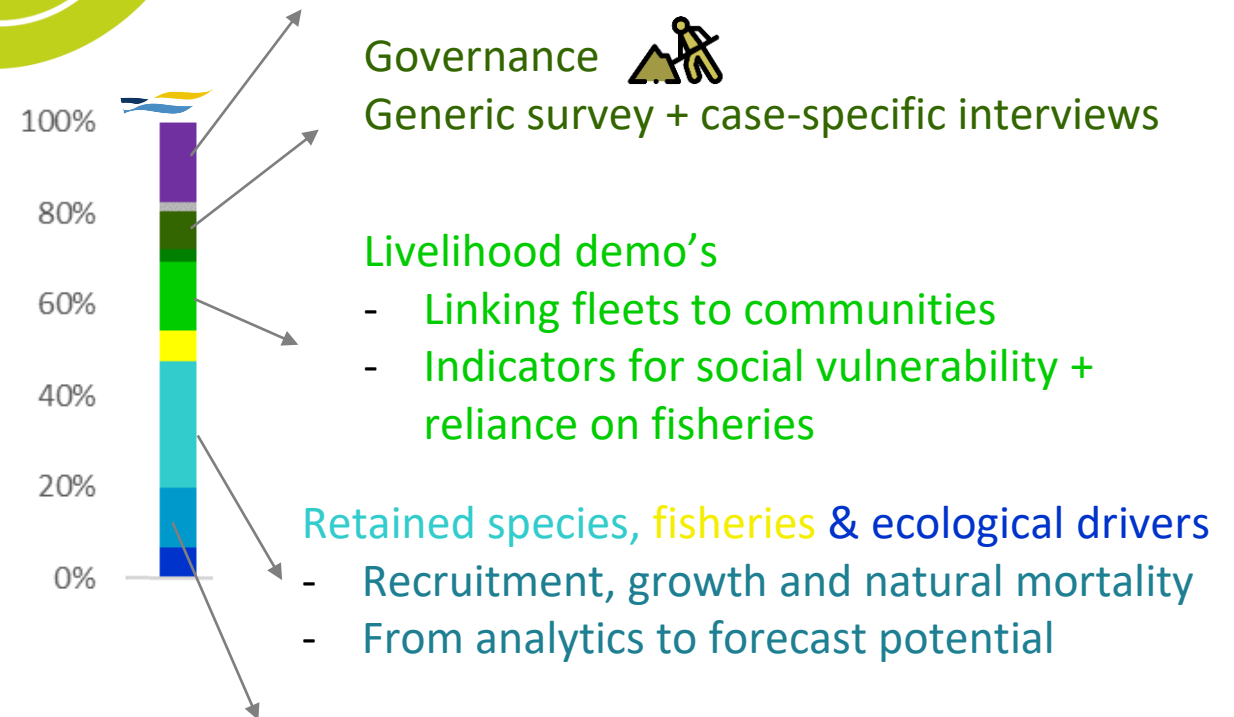
Thanks for listening

Jochem Depestele et al.

TAKE HOME MESSAGES

<https://seawiseproject.org/seawise-results/>

External human drivers
Scenarios of lost fishing grounds due to ORE + MPA



General ecosystem:

- MPAs have little effect on regional benthic state
- MSFD D6 thresholds for RBS will be impactful



www.seawiseproject.org
@SEAWiseProject

APPENDICES



SEAwise has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000318

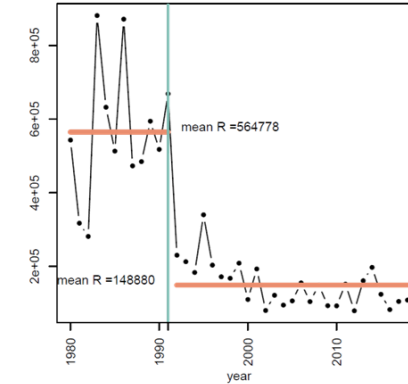
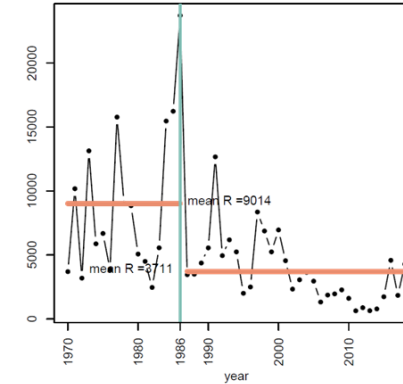
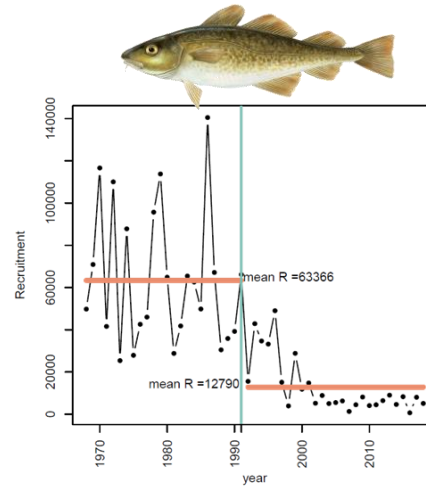


RETAINED SPECIES, FISHERIES & EXTERNAL ECOLOGICAL DRIVERS

EXAMPLES

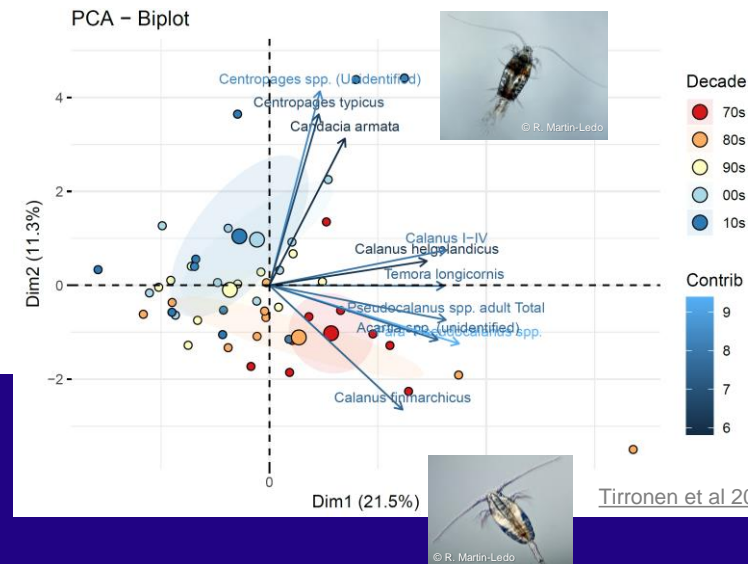


Recruitment



Regime shift in Irish Sea recruitment ?

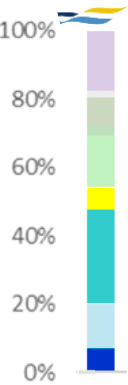
⇒ Cod likely coupled to temperature and zooplankton, more so than whiting or sole



Tirronen et al 2023

Melià et al 2024

<https://seawiseproject.org/seawise-results/>



The logo for Seawise Alaska is composed of three main elements. At the top is a green-outlined water drop containing a green silhouette of a ship on blue wavy lines, with the word "SEAWISE" in blue capital letters. Below this is a yellow circular arrow icon. At the bottom is a dark blue silhouette of the state of Alaska with white stars, resting on a green wave.

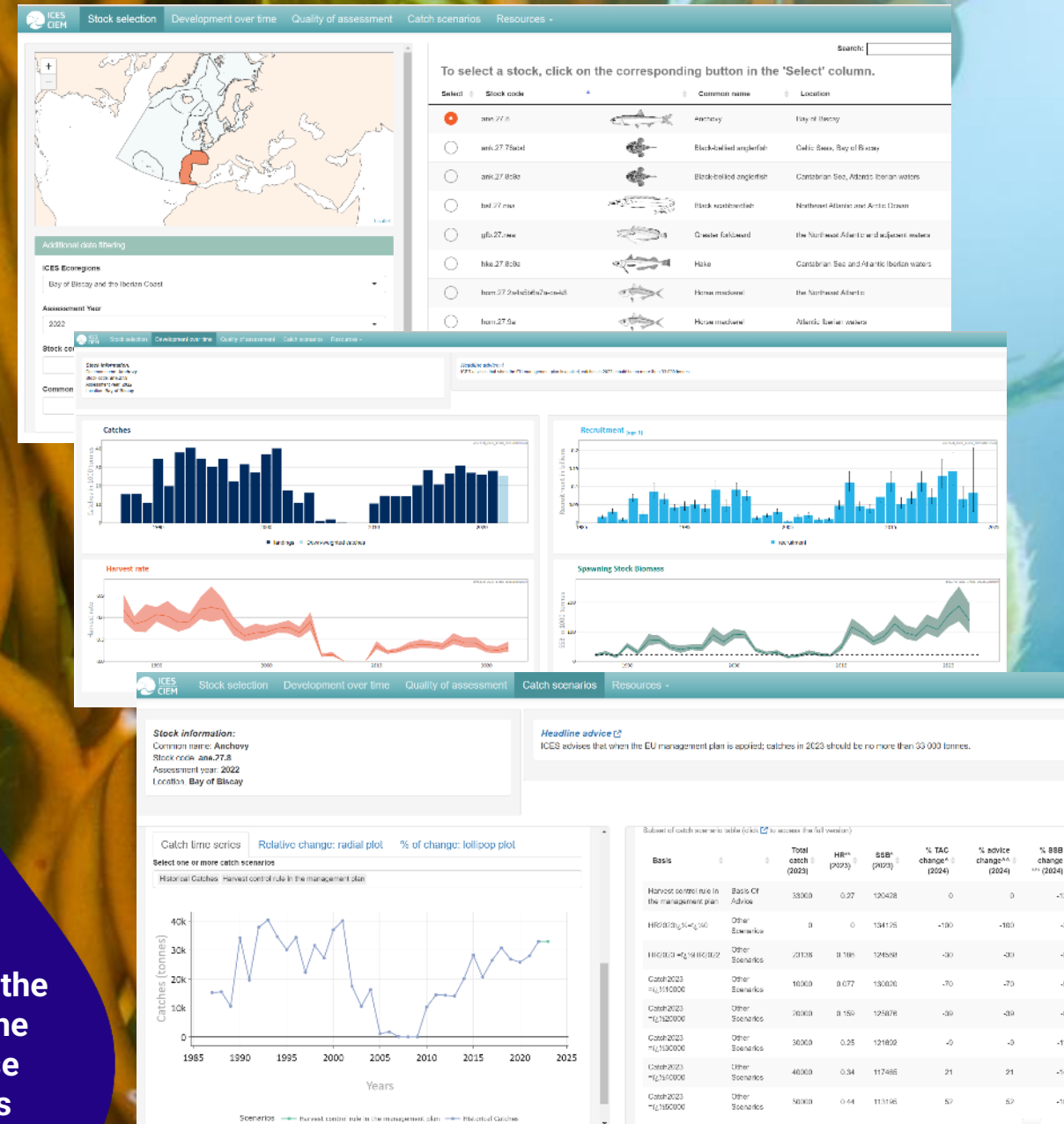
SEAwise EBFM TOOL & ICES Shiny app

Conventional uptake of scientific progress

2. Direct exchange between ongoing projects

3. Scientific scrutiny through ICES WGs & advisory process

4. Ensuring the use of the SEAwisely outputs



<https://ices-taf.shinyapps.io/online-single-stock-advice/>

<https://seawiseproject.org/seawise-results/>



[HOME](#) [ABOUT](#) [THEMES](#) [CASE STUDIES](#) [SEAWISE NETWORK](#) [RESULTS](#) [NEWS](#)

RESULTS

The SEAWise team are working to understand stakeholder needs, address knowledge gaps, and produce tools to facilitate the implementation of Ecosystem Based Fisheries Management in Europe. You can explore the results of our **Work Themes** as they are published, and stay up to date with recent news and updates via our **blog**.

ALL (28)

COMMUNICATION

SOCIAL &
ECONOMIC
EFFECTS

ECOLOGICAL
EFFECTS ON
FISHERIES

SPATIAL
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IMPACTS

ECOLOGICAL
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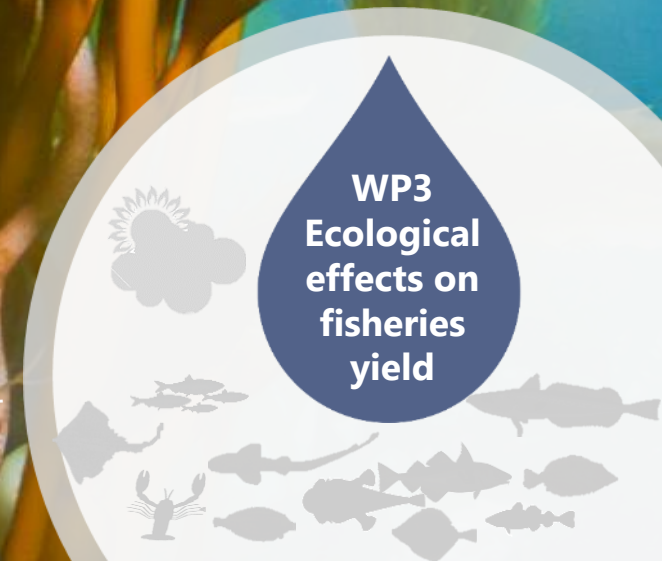
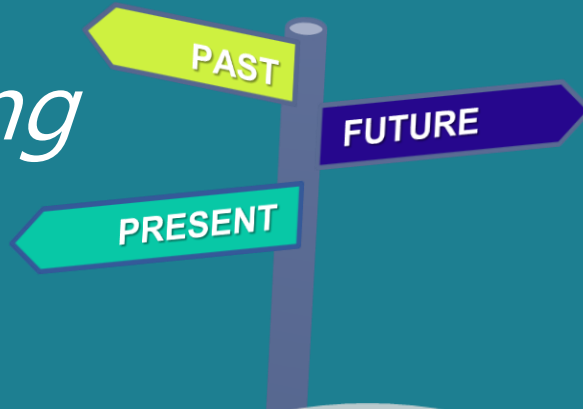
EVALUATION
OF FISHERIES
MANAGEMENT
STRATEGIES

→ ~30 Deliverable reports



IT'S TIME TO GET **SEAWISE**.

*Thanks
for listening*



Jochen Depestele et al.
SEAwise update
2 July 2024



www.seawiseproject.org



@SEAwiseProject