

**SUPERCOBAM  
WORKSHOP**

**NEA  
PANACEA**

North East Atlantic project  
on biodiversity and eutrophication  
assessment integration  
and creation of effective measures

# Workshop Report **ANNEXES**

20-22 October 2021

Online & at Rijkswaterstaat LEF Future Center, Utrecht (NL)



Co-funded by the European  
Maritime and Fisheries Fund



Rijkswaterstaat  
Ministry of Infrastructure  
and Water Management

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# SuperCOBAM workshop report Annex A



## Workshop Programme

### Important information:

- We meet through **ZOOM**: <https://us02web.zoom.us/j/83635762609>
- We make use of [Mentimeter](#) (have it on your phone or have a browser available)
- We make use of [Mori](#) (please register yourself in advance of meeting)
- Use of a head set is preferred



20-22 October 2021, Utrecht (NL) and online (ZOOM)



Co-funded by the European  
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## 3-day Overview

### Day 1

- 08:00 | Doors open, registration
- 08:30 | Welcome live attendees
- 09:00 | Pre-discussion: SuperCOBAM
- 10:15 | Pre-discussion: Assessment Scales and Spatial Integration
- 10:45 | Break

#### ONLINE

- 11:00 | Welcome
- 11:30 | Expert Group Meeting: update
- 12:30 | Lena Avellan: OSPAR secretariat information and resources for the QSR
- 13:00 | Lunch
- 14:00 | Expert Group: Assessment Scales and Spatial Integration
- 14:50 | Close

- 15:00 | Tea break
- 15:30 | Mixed Expert Group: Assessment Scales and Spatial Integration
- 16:30 | Plenary discussion: Assessment Scales and Spatial Integration
- 17:30 | Close of meeting
- 17:40 | Publication talk in pub

End

### Day 2

- 08:00 | Welcome back, coffee
- 08:15 | Activity 2 café
- 10:15 | Pre-discussion: Integration of indicator results
- 10:45 | Break

#### ONLINE

- 11:00 | Welcome
- 11:10 | ICG-EcoC: Adrian Judd
- 12:05 | CCEG: Stephen Dye
- 12:30 | Lunch
- 13:30 | Expert Group: Integration of indicator results
- 14:30 | Close online

- 14:40 | Adrian Judd: Provisions
- 15:10 | Tea Break
- 15:40 | Mixed Expert Group: Integration of indicator results
- 16:40 | Plenary discussion: Integration of indicator results
- 17:30 | Travel time
- 19:00 | Food, drinks, fun to be had at the Greenhouse

22:30 End

### Day 3

- 08:30 | Welcome back, coffee
- 08:45 | Activity 2 café
- 10:15 | Pre-discussion: Threshold Values
- 10:45 | Break

#### ONLINE

- 11:00 | Opening/setting scene
- 11:15 | Response/Measures: Emily Corcoran
- 11:55 | Lena ex machina
- 12:35 | Lunch
- 13:35 | Expert Group: Threshold Values
- 14:35 | Close online

- 14:45 | Emily Corcoran: Provisions
- 15:00 | Tea Break
- 15:30 | Mixed expert group: Threshold values
- 16:30 | Plenary discussion: Threshold Values
- 17:15 | Close

17:30 End

## Day 1: 20 October

TIME	MINS	TITLE	DESCRIPTION
08:00	30'	<b>Doors open, registration</b>	The venue is at: LEF Future Centre, Griffioenlaan 2, Utrecht. This is the high rise building close to the P+R Westraven tram and bus stop. Report to the reception when you enter.
08:30	30'	<b>Welcome live attendees</b>	Informal start with live attendees, time to discover the venue and find a pleasant spot for logging in and breakouts later on.
09:00	75'	<b>Pre-discussion: SuperCOBAM</b>	Plenary with all physical attendants. What do want to achieve, how can we best do this, and what is the desired shape or format of the outcomes? We will also familiarize ourselves with the workshop setup.
10:15	30'	<b>Pre-discussion: Assessment Scales and Spatial Integration</b>	Expert Group Leads in a subgroup. We make sure all online discussion leaders are on the same page regarding topic, outcomes and mode of reporting / feeding back. Non-Expert Group Leads have catch-up talks & network time.
10:45	15'	<b>Break</b>	
<b>ONLINE</b>			
11:00	30'	<b>Welcome</b>	We welcome everyone, and wonder: <ul style="list-style-type: none"> <li>- Why are we here?</li> <li>- What is Super Cobam? And NEA PANACEA?</li> <li>- What are the aims of the coming three days?</li> <li>- What are the aims of today?</li> <li>- When is the meeting a success?</li> <li>- Who is online?</li> </ul> In addition, we dive into practicalities such are the workshop programme.
11:30	60'	<b>Expert Group Meeting: update</b>	Expert Groups each go to their own break out area. This moment is intended for the Experts to discuss amongst themselves what the desired outcome of the workshop is and how to achieve this. This is also a good moment to discuss the data that is available for the indicator assessments. Are there gaps that may be fixed?
12:30	30'	<b>Lena Avellan: OSPAR secretariat information and resources for the QSR</b>	Lena from the OSPAR secretariat will inform the COBAM expert network on practical matters concerning the delivery of indicator assessments and the QSR in general. There will be opportunity to ask questions in written form. On Friday we hope to welcome Lena again and she may have some answers for us.
13:00	60'	<b>Lunch</b>	
14:00	50'	<b>Expert Group: Assessment Scales and Spatial Integration</b>	The central topic of today is Assessment Scales and Spatial Integration. For every ecosystem component this has its own characteristic issues and problems, but there are of course also similarities in challenges with other ecosystem components. What is the state of the art for your indicators, where do we need to make steps forwards, and what do we seek to learn from others? Discussion leads (i.e. Expert Group Leads) are responsible for taking output to the later physical sessions.
14:50	10'	<b>Close</b>	
15:00	30'	<b>Tea break</b>	

15:30	60'	<b>Mixed Expert Group: Assessment Scales and Spatial Integration</b>	Armed with the output of the online Expert Group discussions, the group that is physically present in Utrecht splits into 3 groups to discuss and allow for exchange and cross-pollination between Expert Groups.
16:30	60'	<b>Plenary discussion: Assessment Scales and Spatial Integration</b>	Here we discuss the topic with all physical participants. An important aim is to generate an overview of the outcomes that can be shared with the wider COBAM community.
17:30	10'	<b>Close of meeting</b>	
17:40	290'	<b>Publication talk in pub</b>	Expert Group Leads to pick up ongoing discussion on publishing paper in an obscure bar somewhere in Utrecht
22:30			

## Day 2: 21 October

TIME	MINS	TITLE	DESCRIPTION
08:00	15'	<b>Welcome back, coffee</b>	
08:15	120'	<b>Activity 2 café</b>	A NEA PANACEA-specific event aimed at cross-cutting aspects of the project. Programme to be announced.
10:15	30'	<b>Pre-discussion: Integration of indicator results</b>	Expert Group Leads in a subgroup. We make sure all online discussion leaders are on the same page regarding topic, outcomes and mode of reporting / feeding back. Non-Expert Group Leads have catch-up talks & network time.
10:45	15'	<b>Break</b>	
<b>ONLINE</b>			
11:00	10'	<b>Welcome</b>	We welcome back the online community and go through the topics and sessions of the day.
11:10	55'	<b>ICG-EcoC: Adrian Judd</b>	Adrian Judd will share his work on the Drivers, Activities, Pressures, State, Impact, Response (DAPSIR) approach to the biodiversity thematic assessment. What need ICG-EcoC and ICG-COBAM do for each other?
12:05	25'	<b>CCEG: Stephen Dye</b>	Stephen Dye to present the work of the Climate Change Expert Group (CCEG), and elaborate on how they seek to collaborate with ICG-COBAM.
12:30	60'	<b>Lunch</b>	
13:30	60'	<b>Expert Group: Integration of indicator results</b>	The central topic of today is Integration of indicator results. For every ecosystem component this has its own characteristic issues and problems, but there are of course also similarities in challenges with other ecosystem components. What is the state of the art for your indicators, where do we need to make steps forwards, and what do we seek to learn from others? Discussion leads (i.e. Expert Group Leads) are responsible for taking output to the later physical sessions.
14:30	10'	<b>Close online</b>	
14:40	30'	<b>Adrian Judd: Provisions</b>	An opportunity for Adrian to meet with the Expert Group Leads and make provisions for how to pick up the work in next steps. Non-Expert Group Leads have catch-up talks & network time.
15:10	30'	<b>Tea Break</b>	
15:40	60'	<b>Mixed Expert Group: Integration of indicator results</b>	Armed with the output of the online Expert Group discussions, the group that is physically present in Utrecht splits into 3 groups to discuss and allow for exchange and cross-pollination between Expert Groups.

16:40	50'	<b>Plenary discussion: Integration of indicator results</b>	Here we discuss the topic with all physical participants. An important aim is to generate an overview of the outcomes that can be shared with the wider COBAM community.
17:30	90'	<b>Travel time</b>	
19:00	210'	<b>Food, drinks, fun to be had at the Greenhouse</b>	<a href="https://www.thegreenouserestaurant.nl/about-the-green-house/">https://www.thegreenouserestaurant.nl/about-the-green-house/</a>
22:30			

### Day 3: 22 October

TIME	MINS	TITLE	DESCRIPTION
08:30	15'	<b>Welcome back, coffee</b>	
08:45	90'	<b>Activity 2 café</b>	A NEA PANACEA-specific event aimed at cross-cutting aspects of the project. Programme to be announced.
10:15	30'	<b>Pre-discussion: Threshold Values</b>	Expert Group Leads in a subgroup. We make sure all online discussion leaders are on the same page regarding topic, outcomes and mode of reporting / feeding back. Non-Expert Group Leads have catch-up talks & network time.
10:45	15'	<b>Break</b>	
<b>ONLINE</b>			
11:00	15'	<b>Opening/setting scene</b>	We welcome back the online community and go through the topics and sessions of the day.
11:15	40'	<b>Response/Measures: Emily Corcoran</b>	An opportunity for Emily Corcoran to present her work and plans for the response/measures section of the thematic assessments. How can you and she be of help to each other?
11:55	40'	<b>Lena ex machina</b>	Lena has the stage to address the no doubt many questions that were raised during the workshop. This is a follow-up of day 1.
12:35	60'	<b>Lunch</b>	
13:35	60'	<b>Expert Group: Threshold Values</b>	The central topic of today is Threshold Values. For every ecosystem component this has its own characteristic issues and problems, but there are of course also similarities in challenges with other ecosystem components. What is the state of the art for your indicators, where do we need to make steps forwards, and what do we seek to learn from others? Discussion leads (i.e. Expert Group Leads) are responsible for taking output to the later physical sessions.
14:35	10'	<b>Close online</b>	
14:45	15'	<b>Emily Corcoran: Provisions</b>	A chance for Emily to decide with Expert Group Leads how to pick up the work in the near future. Non-Expert Group Leads have catch-up talks & network time
15:00	30'	<b>Tea Break</b>	
15:30	60'	<b>Mixed expert group: Threshold values</b>	Armed with the output of the online Expert Group discussions, the group that is physically present in Utrecht splits into 3 groups to discuss and allow for exchange and cross-pollination between Expert Groups.
16:30	45'	<b>Plenary discussion: Threshold Values</b>	Here we discuss the topic with all physical participants. An important aim is to generate an overview of the outcomes that can be shared with the wider COBAM community.
17:15	15'	<b>Close</b>	
17:30			



## Resource Library

For your convenience (not comprehensive)

### Descriptor Specific

[JRC report on \*\*Pelagic habitats\*\* under MSFD D1: current approaches and priorities](#)

[JRC report: Alignment of the Marine Strategy Framework Directive and the Habitats Directive: current state and future perspectives](#)

[Stæhr et al \(2020\) Trends in records and contribution of \*\*non-indigenous species\*\* to marine communities in Danish waters. Potential indicators for assessing impact](#)

[Tsiamis et al \(2019\) \*\*Non-indigenous species\*\* refined national baseline inventories: A synthesis in the context of the European Union's Marine Strategy Framework Directive](#)

*JRC Review and analysis of EU Member States' 2018 MSFD reports*

[D1-Pelagic](#)

[D1-Species](#)

[D2](#)

[D3](#)

[D4](#)

[D5](#)

[D6](#)

### Integration

[JRC report on integration of D1-species not covered under the species and habitats directive](#)

### Threshold Values

[JRC review report on Species Threshold Values methods](#)

[EU MSFD Horizontal Issues: Threshold Values workshop pre-read document](#)



## [Report of the EU MSFD Horizontal Issues: Threshold Values workshop](#)

[Tsiamis K, et al \(2021\), Marine Strategy Framework Directive- Descriptor 2, \*\*Non-Indigenous Species\*\*, Delivering solid recommendations for setting threshold values for non-indigenous species pressure on European seas](#)

(Submitted to) BDC 2019: Setting regional threshold values for **Non-Indigenous Species** primary criteria: pros, cons and how it could be achieved:



BDC2019\_NIS\_TV.docx

## Terminology and resources

[OSPAR QSR2010 glossary](#)

[OSPAR resources page](#)

[OSPAR QSR Guidance document](#)

Definitions Annex from QSR Guidance:



QSR guidance  
Annex 4\_Definitions

[OSPAR Intermediate Assessment 2017](#)

[OSPAR, 2012 MSFD Biodiversity advice manual \(A bit old but definition of terms here were re-used in several other regional activities and reviewed MSFD\)](#)

[EcApRHA Technical reports, often with glossary](#)

SuperCOBAM 2019 workshop report:



SuperCOBAM2019  
report.pdf

# SUPERCOBAM WORKSHOP

# NEA PANACEA

North East Atlantic project  
on biodiversity and eutrophication  
assessment integration  
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Rijkswaterstaat  
*Ministry of Infrastructure  
and Water Management*

20 – 22 October 2021

Online & at Rijkswaterstaat LEF Future Center, Utrecht (NL)

# What is NEA PANACEA?

North East Atlantic project on biodiversity and eutrophication assessment integration and creation of effective measures

EU funded

MSFD-oriented

Through QSR

4 COBAM EGs

+

Eutrophication  
Experts

8 Partners

5 CPs



# What is NEA PANACEA?

EU funded

MSFD-oriented

Through QSR

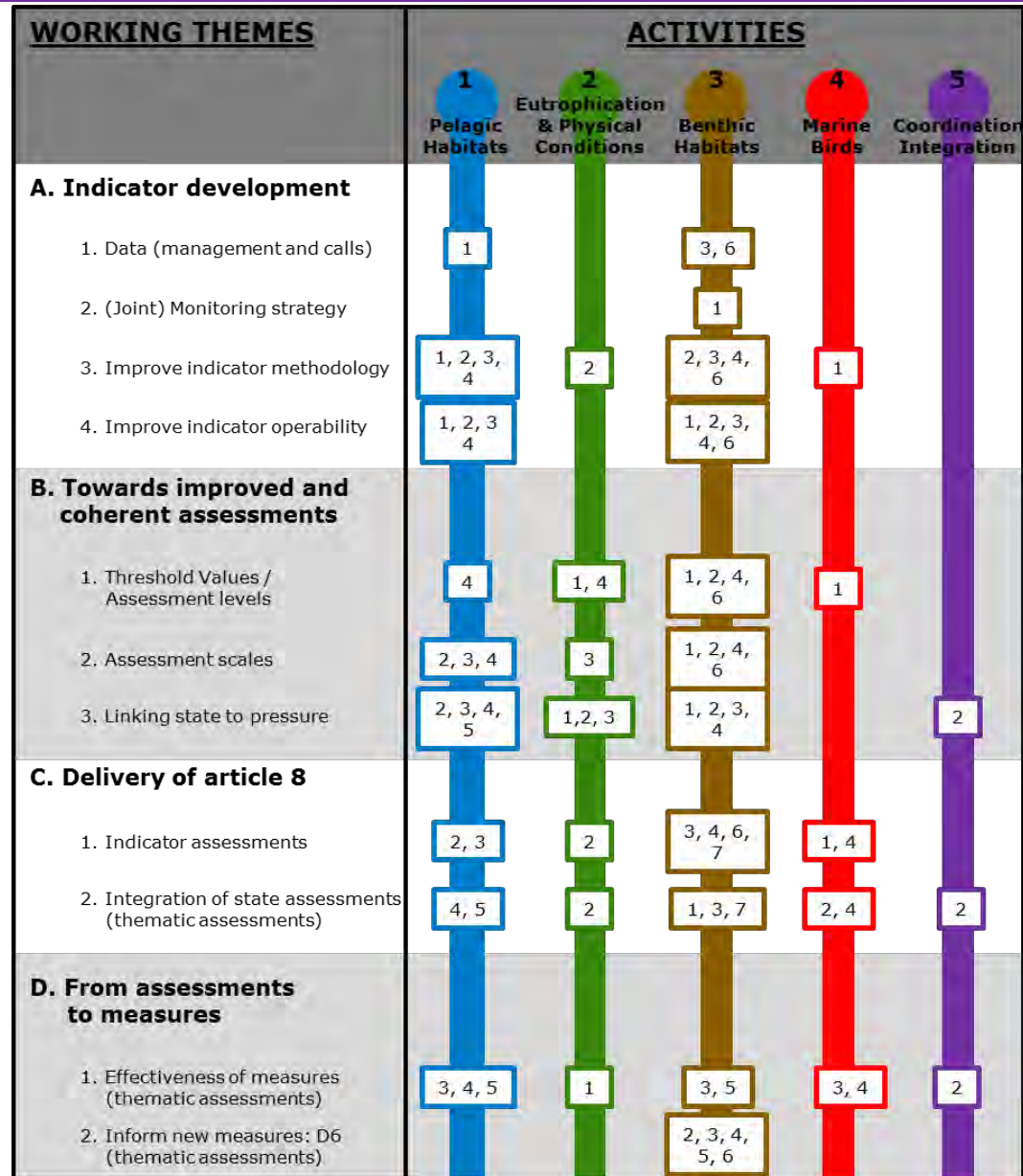
4 COBAM EGs

+

Eutrophication  
Experts

8 Partners

5 CPs



Pelagic  
habitats

Fish

Marine  
birds

NIS

Marine  
mammals

Food webs

Benthic  
habitats

# What is SuperCOBAM?



## OSPAR ICG-COBAM Expert Groups

*Assessing Biodiversity Status Under Pressure: towards an Ecosystem Resilience approach*

### "S.U.P.E.R. COBAM" workshop report

Paris (France) 18<sup>th</sup> to 20<sup>th</sup> of June 2019

Location: [Muséum National d'Histoire Naturelle \(MNHN\)](#)



Co-chairs: Anita Gilles (chair Marine Mammals, Germany), Abigail McQuatters-Gollop (chair Pelagic Habitats, United Kingdom), Laurent Guérin (co-chair Benthic Habitats, France), Ian Mitchell (chair Seabirds, United Kingdom), Ulrike Schueckel (chair Food Webs, Germany), Paul Stebbing (chair Non Indigenous Species, United Kingdom), Cristina Vina-Herbon (co-chair Benthic Habitats, United Kingdom)



# SuperCOBAM

Why are we here?



To learn about process and requirements  
(ICG-QSR, OSPAR Secretariat)

To hear from relevant OSPAR bodies  
(ICG-EcoC, BiTA)

To discuss cross-cutting issues

To exchange information, ask questions, interact,  
learn from each other & connect to collaborate

# SuperCOBAM

Assessment Scales and Spatial Integration

Integration of Indicator Results

Threshold Values

Thematic Assessments

The DAPSIR framework

(Drivers, Activities, Pressures, Status, Impact, Response)

Climate Change

Cross-cutting  
themes?

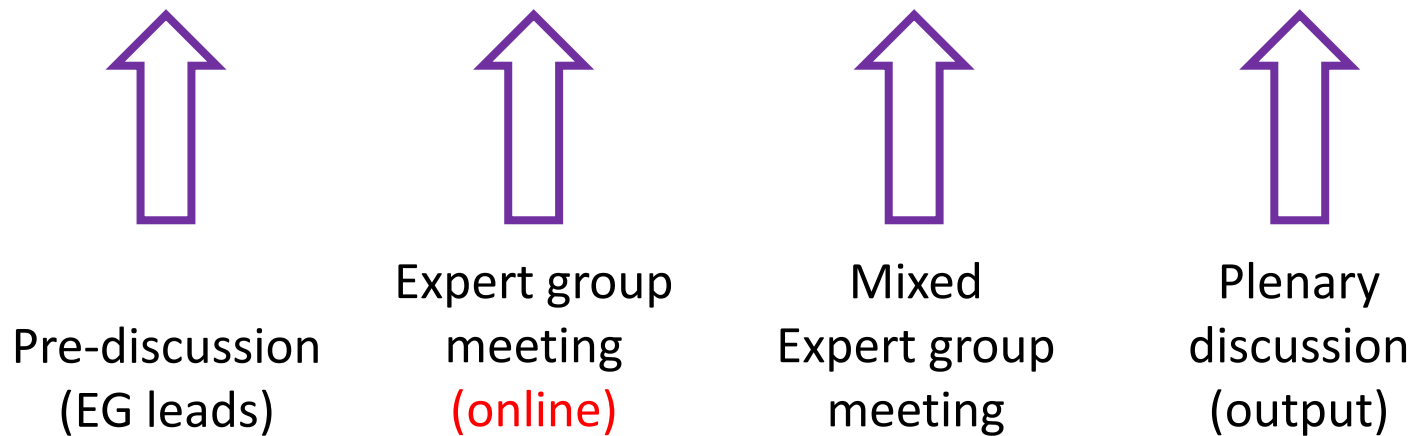
But also:

# Workshop setup (main themes)

Assessment Scales  
and  
Spatial Integration

Integration of  
Indicator Results

Threshold Values



**EG leads, Chairs, NEA PANACEA members**



# Workshop setup (main themes)

Assessment Scales  
and  
Spatial Integration



Integration of  
Indicator Results



Threshold Values

Left luggage:  
Any ideas, messages or afterthoughts?



Miro online whiteboard

# Online Programme

DAY 1

		Day 1
08:00	Doors open, registration	
08:30	Welcome live attendees	
09:00	Pre-discussion: SuperCOBAM	
10:15	Pre-discussion: Assessment Scales and Spatial Integration	
10:45	Break	
<b>ONLINE</b>		
11:00	Welcome	
11:30	Expert Group Meeting: update	
12:30	Lena Avellan: OSPAR secretariat information and resources for the QSR	
13:00	Lunch	
14:00	Expert Group: Assessment Scales and Spatial Integration	
14:50	Close	
15:00	Tea break	
15:30	Mixed Expert Group: Assessment Scales and Spatial Integration	
16:30	Plenary discussion: Assessment Scales and Spatial Integration	
17:30	Close of meeting	

# Online Programme

## DAY 2

Day 2

08:00 Welcome back, coffee

08:15 Activity 2 café

10:15 Pre-discussion: Integration of indicator results

10:45 Break

### ONLINE

11:00 Welcome

11:10 ICG-EcoC: Adrian Judd

12:05 CCEG: Stephen Dye

12:30 Lunch

13:30 Expert Group: Integration of indicator results

14:30 Close online

14:40 Adrian Judd: Provisions

15:10 Tea Break

15:40 Mixed Expert Group: Integration of indicator results

16:40 Plenary discussion: Integration of indicator results

# Online Programme

Day 3

DAY 3

08:30 Welcome back, coffee

08:45 Activity 2 café

10:15 Pre-discussion: Threshold Values

10:45 Break

## ONLINE

11:00 Opening/setting scene

11:15 Response/Measures: Emily Corcoran

11:55 Lena ex machina

12:35 Lunch

13:35 Expert Group: Threshold Values

14:35 Close online

14:45 Emily Corcoran: Provisions

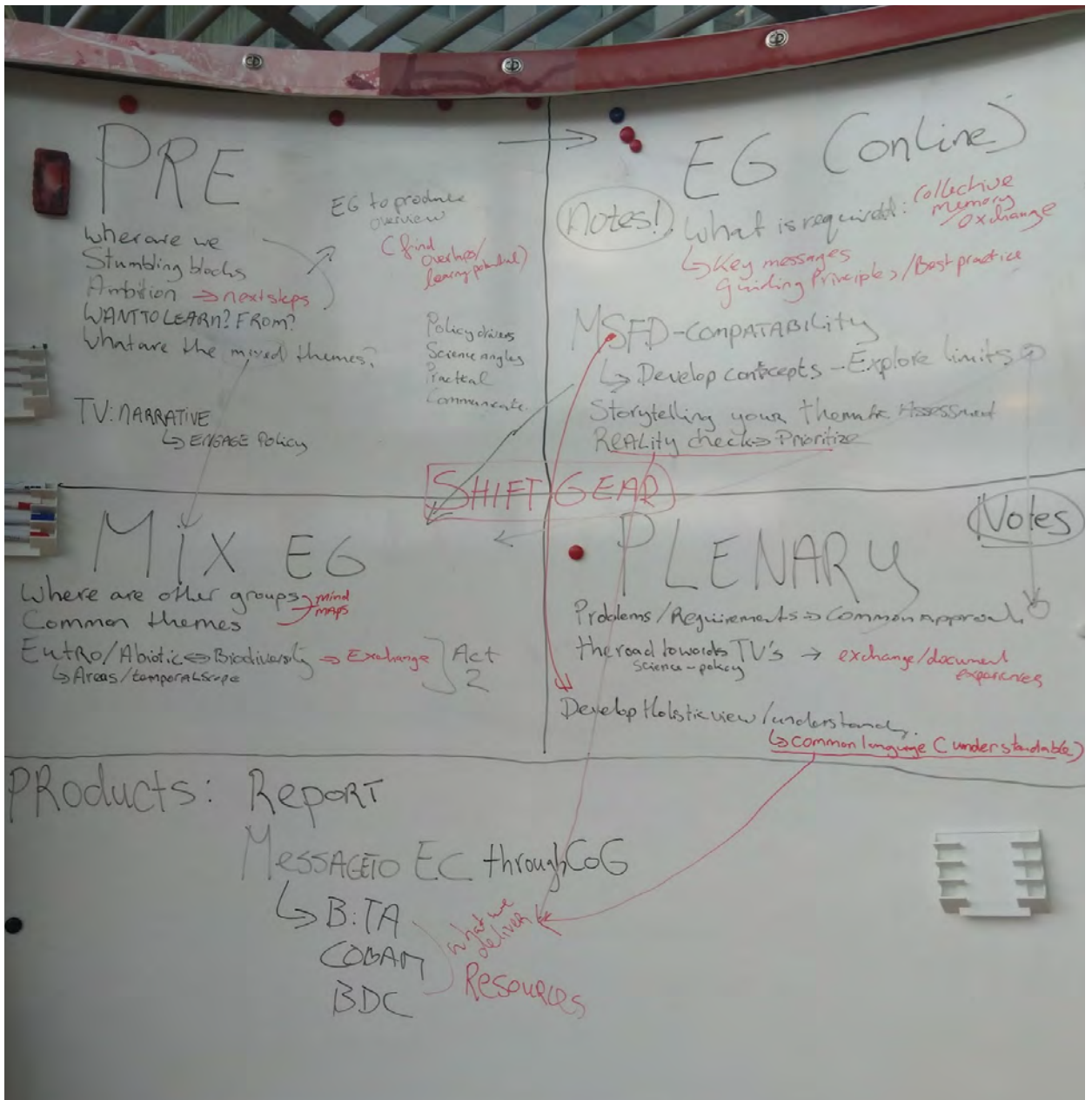
15:00 Tea Break

15:30 Mixed expert group: Threshold values

16:30 Plenary discussion: Threshold Values

17:15 Close

# SuperCOBAM workshop report Annex D



# PRE

Where are we  
Stumbling blocks

Ambition → next steps

WANT TO LEARN? FROM?

What are the mixed themes?

EG to produce  
overview

(find overlaps/  
learning potential)

Policy drivers  
Science angles  
Practical  
Communicate.

TV: NARRATIVE

↳ ENGAGE Policy

# EG (online)

(Notes!)

What is required: collective  
memory  
exchange  
↳ Key messages  
Guiding Principle > Best practice

MSFD-COMPATABILITY

↳ Develop concepts - Explore limits

Storytelling your theme Assessment

Reality check → Prioritize

(EAD)

(Notes)

# PLENARY

Problems/Requirements → Common approach

The road towards TV's → exchange/document experiences  
Science - policy

Develop holistic view/understanding.  
↳ Common language (understandable)

# MIX EG

Where are other groups } mind maps  
Common themes

Entro/Abiotic ↔ Biodiversity → Exchange } Act 2  
↳ Areas/temporal scope

Products: Report

Message to EC through CoG

↳ B:TA  
COBAM  
BDC } what we deliver  
Resources

OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic  
Meeting of the Biodiversity Committee (BDC)  
Videoconference: 12–16 April 2021

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## Overview of biodiversity common indicator assessments foreseen for QSR 2023

*Table 1. Status of contribution of COBAM common and candidate indicators to QSR 2023*

Common indicator contributing to the QSR 2023,	Common indicator contributing to the QSR 2023,
Candidate indicator	Candidate indicator
Proposal for extension to an additional region	Proposal for extension to an additional region
Candidate indicator for a pilot assessment is proposed for QSR 2023	Candidate indicator for a pilot assessment is proposed for QSR 2023
There are questions to resolve before a recommendation for an extension or a pilot assessment can be given, such as texting or data availability (see notes)	There are questions to resolve before a recommendation for an extension or a pilot assessment can be given, such as texting or data availability (see notes)
No assessment will be done	No assessment will be done
<b>new</b>	New assessment
<b>IA2017</b>	IA2017 assessment will be used (either no resources or no new data expected)
<b>update</b>	The indicator assessment will be updated with new data or methods
[.....]	<b>Resource question.</b> An update or new assessment will only be possible if additional resources are made available including both to support the indicator lead and for confirmed partners in the work

Code	Indicator name	Lead country	Region I	Region II	Region III	Region IV	Region V	EU MSFD Descriptor	MSFD Criterion; Relevant primary, secondary, (Other) <sup>1</sup>
M3	Seal abundance and distribution	UK	new	update	update for UK, new for Ireland			D1	<b>D1C2,</b>

<sup>1</sup>See BDC 18/04/06



Code	Indicator name	Lead country	Region I	Region II	Region III	Region IV	Region V	EU MSFD Descriptor	MSFD Criterion; Relevant primary, secondary, (Other) <sup>1</sup>
M4	Abundance and distribution of marine mammals	NL/FR		update	update	update		D1	D1C2,
M5	Grey seal pup production	UK	new	update	update for UK new for Ireland			D1	D1C3,
M6	Marine mammal bycatch	UK	new	new	new	new		D1	D1C1
B1	Marine bird abundance	UK, DE	update (R1 data in IA2017)	update New (at-sea data pilot)	update	new		D1	D1C2,
B2	<i>Breeding success of kittiwake</i>	UK						D1	(D1C3)
B3	Marine bird breeding success	UK, DE	update (R1 data in IA2017)	update	update	new		D1	D1C3
B4	<i>Non-native/invasive mammal presence on island seabird colonies</i>	--						D1	(D1C5)
B5	<i>Marine bird bycatch</i>	DE/NO	new	new	new	new	new	D1	D1C1
B6	<i>Distribution marine birds</i>	--						D1	(D1C4)
B7	Marine bird habitat quality	DE		New				D1	D1C5
FC1	Recovery in the population abundance of sensitive fish species	UK		update	update	New	New	D1	D1C2
FC4	<i>By-catch rates of Chondrichthyes</i>	--						D1	D1C1
FC5	<i>Conservation status of elasmobranch and demersal bony-fish species (IUCN)</i>	DE						D1	(D1C2)
FC6	<i>Proportion of mature fish</i>	--						D1	(D1C3)

Code	Indicator name	Lead country	Region I	Region II	Region III	Region IV	Region V	EU MSFD Descriptor	MSFD Criterion; Relevant primary, secondary, (Other) <sup>1</sup>
FC7	Distributional range	DE	new (note 2)	new (note 2)	new (note 2)	new (note 2)	new (note 2)	D1	D1C4
FC8	Fish distributional pattern	DE	new (note 2)	new (note 2)	new (note 2)	new (note 2)	new (note 2)	D1	(D1C4)
BH1	Typical species composition	ES		[new] Testing ongoing (note 3)		new		D1& D6	D6C3, D6C5
BH2	Condition of benthic habitat communities: The common conceptual approach	FR	Update					D1 & D6	D6C3, D6C5
BH2a	Assessment of coastal habitats exposed to nutrient and organic enrichment.	FR	[ Update Study reservati DK & IS update CoG(1)21 ]	update	update	update	[New PT study reservation for Azores update CoG(1)21]	D1, D5& D6	D6C5, D5C6, D5C7, D5C8
BH2b	Benthic Multi-Metric Index quality assessment of the Southern North Sea	FR/NL		[update]				D1& D6	D6C3, D6C5,
BH3	Extent of physical damage of predominant and special habitats	UK/DE		update	update	update		D1& D6	partly D6C2, D6C3, D6C5, D2C2, D2C3
BH4	Area of habitat loss	UK/DE		new				D1& D6	partly D6C1, D6C4,
BH5	Size-frequency distribution of bivalve or other sensitive/indicator species	ES						D1& D6	D6C3, D6C5,
PH1/ FW5	Changes of plankton functional types (life form) index Ratio	UK		updated	updated	updated		D1	D1C6, D4C2, D4C3
PH2	Plankton biomass and/or abundance	FR		update	update	update		D1	D1C6, D4C2
PH3	Changes in biodiversity index (s)	FR		updated	new	updated		D1	D1C6, D4C1
NIS3	NIS Trends in New Records of Non-	UK		update	update	update		D2	D2C1

Code	Indicator name	Lead country	Region I	Region II	Region III	Region IV	Region V	EU MS FD Descriptor	MSFD Criterion; Relevant primary, secondary, (Other) <sup>1</sup>
	Indigenous Species (NIS) Introduced by Human Activities								
NISx	NIS abundance/spread	FR, UK						D2	D2C2
FW1	Reproductive success of marine birds in relation to food availability	--						D4	D4C4
FW2	Production of phytoplankton	[no lead]		update	update	[new]		D4	D4C4
FW3	Size composition in fish communities (TyL)	UK		update	update	update	partial update	D4	D1C3, D4C3
FW4	Changes in average trophic level of marine predators in the Bay of Biscay (cf MTI)	ES		new		update		D4	D4C2
FC2	Proportion of large fish (Large Fish Index)	UK		update	update	[New Study reservations from FR & PT update at COG(1)21]	[New study reservation PT update at COG(1)21]	D4	D4C3
FC3	Mean maximum length of demersal fish and elasmobranchs	NL/UK		Update (promotion proposed study reservation NO, DK, PT)	Update (promotion proposed and supported by R III CPs, study reservation NO, DK, PT)	Update (promotion proposed study reservation NO, DK, PT)	Partial IA2017 [partial update]	D4	D4C1
FW6	Biomass, species composition and spatial distribution of zooplankton	SE		[new] note 5	[new] note 5	[new] note 5		D4	D4C2, D4C3
FW7	Fish biomass and abundance of dietary functional groups	UK/ES		New	New	New		D4	D4C2
FW8	Biomass trophic Spectrum	--						D4	
FW9	Ecological Network Analysis	DE		New		[new] note 5	[new] note 5	D4	D4C1, D4C2, D4C4

Notes

1. FC7 and FC8. Possibilities for preparing a pilot assessment of these indicators will be explored at the next fish biodiversity assessment workshop.
2. BH1. Testing of a revision to the BH1 method is ongoing. Testing of the existing BH1 method has been taking place in Region II. Possibilities for extending the indicator to Region II need to be reviewed when the consequences of this testing are clearer (possibly ICG-COBAM 2021).
3. FW6. Possibilities for a pilot assessment of this indicator in Regions II, III and IV will be reviewed within the NEA-PANACEA project and reviewed at ICG-COBAM 2021.
4. FW9. Possibilities for the pilot assessment to include Regions IV and Region V to be examined by ES and PT in communication with the ICG-COBAM Convenors in January 2021.

# DAPSIR in the QSR 2023 – ICG-EcoC update for super COBAM

Adrian Judd



Together we are working for a  
sustainable blue future

# Ecosystem Approach in OSPAR

“... the comprehensive integrated management of human activities based on the best available scientific knowledge about the ecosystem and its dynamics, in order to identify and take action on influences which are critical to the health of marine ecosystems, thereby achieving sustainable use of ecosystem goods and services and maintenance of ecosystem integrity.”

# To fully apply the Ecosystem Approach in the QSR

Requires an understanding of:

- The **drivers** of change [D]
- How human **activities** and **pressures** affect ecosystems [AP]
- Health, integrity and dynamics of marine ecosystems – baseline vs impacted **state** [S]
- **Impact** of changes on ecosystem goods and services [I]
- Integrated management measures (**responses**) [R]



# DAPSIR (extended DPSIR)

Drivers of basic human needs require Activities which lead to Pressures which can lead to changes in the State (environmental impact) of the natural system, which lead to Impacts on Ecosystem Services which in turn influence the Drivers.

These interrelationships require management **Responses** (as Measures). *[e.g. EC, 1999, Patricio et al 2016, Elliot et al 2017]*



# DAPSIR – environmental, social and economic

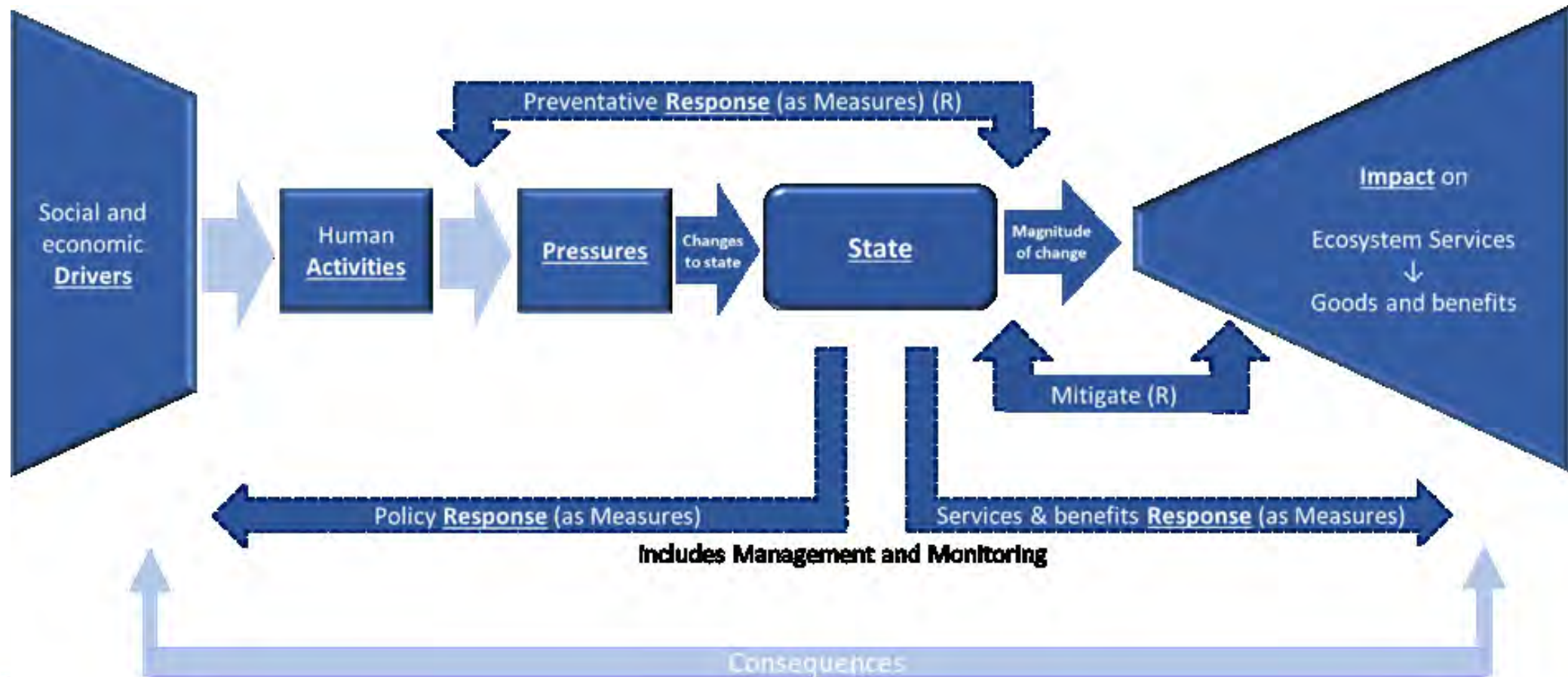
- Driver – society needs food
- Activity – fisheries
- Pressure – seabed disturbance
- State – damage to habitats
- Impact – reduced biomass
- Response – closed areas

Decreased CPU

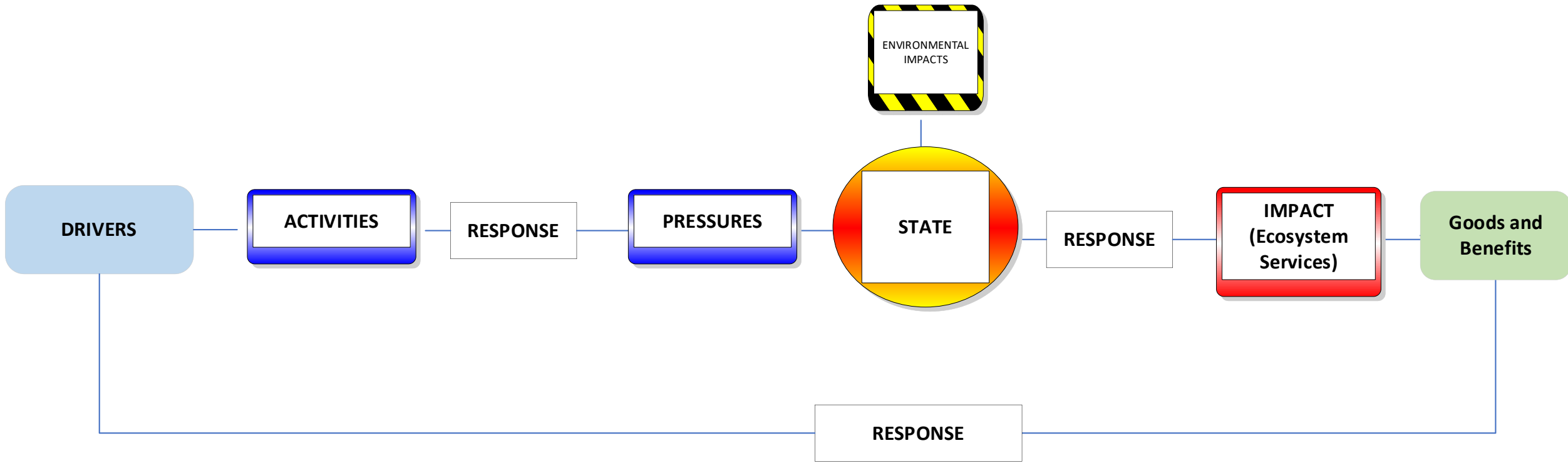
- Driver – society needs energy
- Activity – offshore wind farms
- Pressure – underwater noise
- State – species displacement
- Impact – reduced health
- Response – restricted energy development

Net Zero targets  
compromised

# DAPSIR QSR Guidance – Systems Approach



# DAPSIR pathways → Bow Tie Analysis



	ACTIVITY			
DRIVER	X		X	
		X		
			X	X
			X	

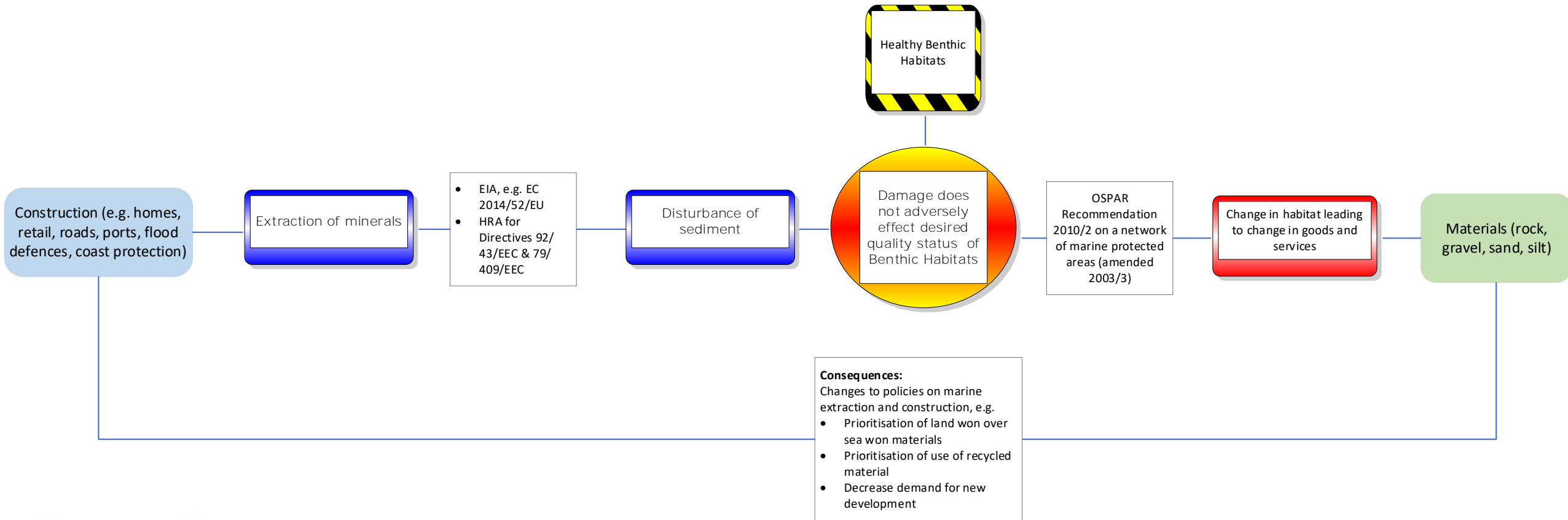
	PRESSURE			
ACTIVITY	X		X	
		X		
			X	X
			X	

	STATE			
PRESSURE	X		X	
		X		
			X	X
			X	

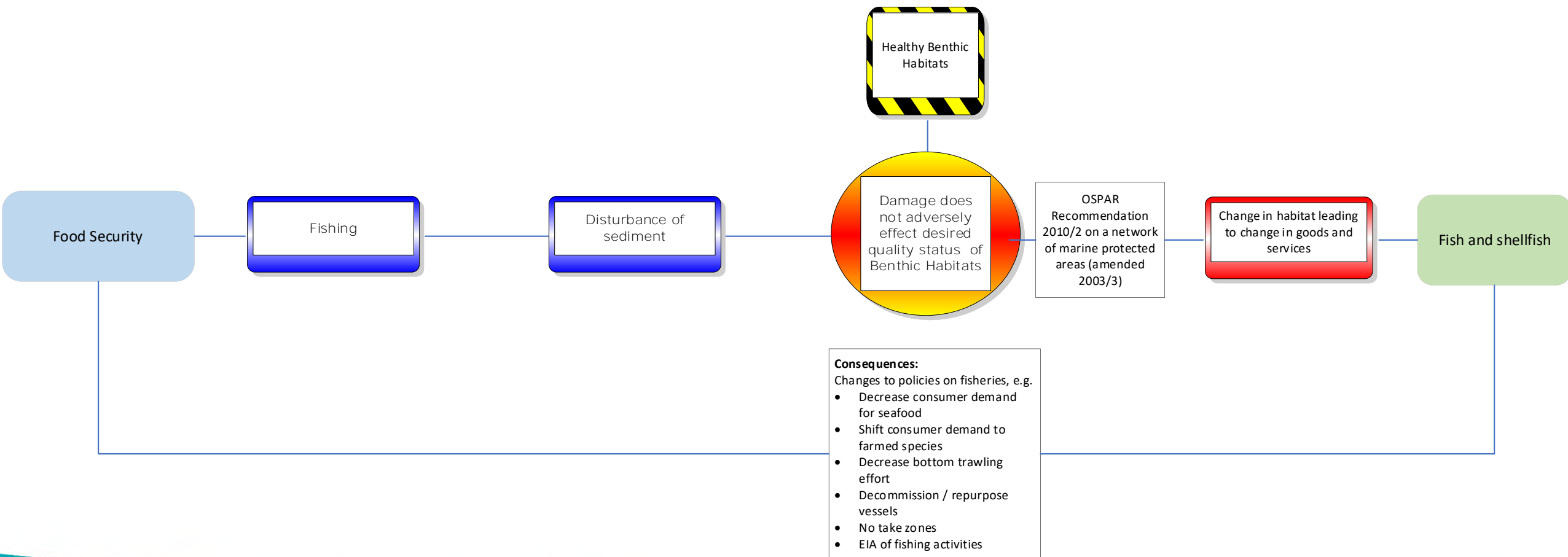
	IMPACT			
STATE	X		X	
		X		
			X	X
			X	

	RESPONSE			
ACTIVITY / STATE	X		X	
		X		
			X	X
			X	

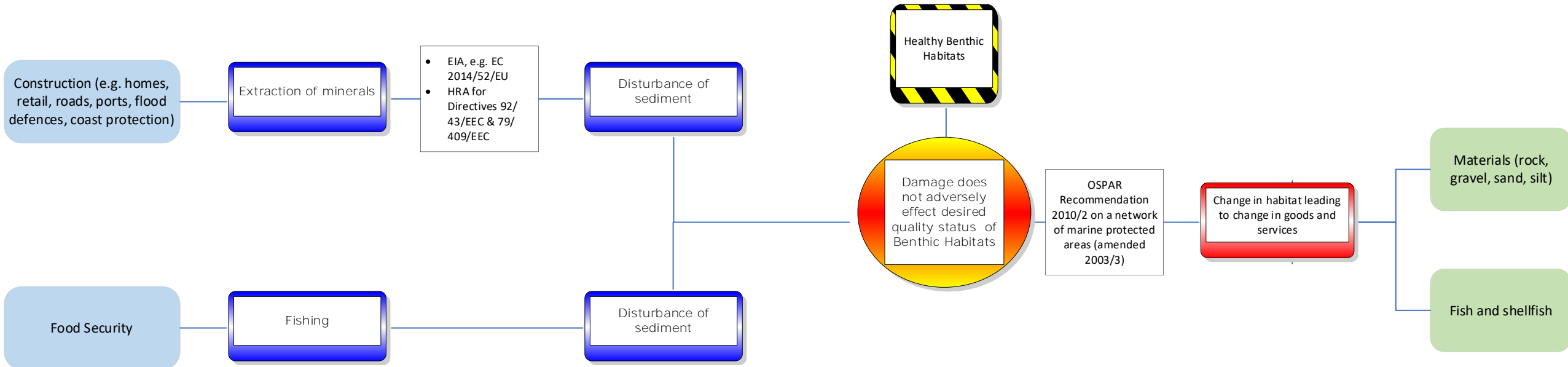
# Benthic habitats – aggregate extraction



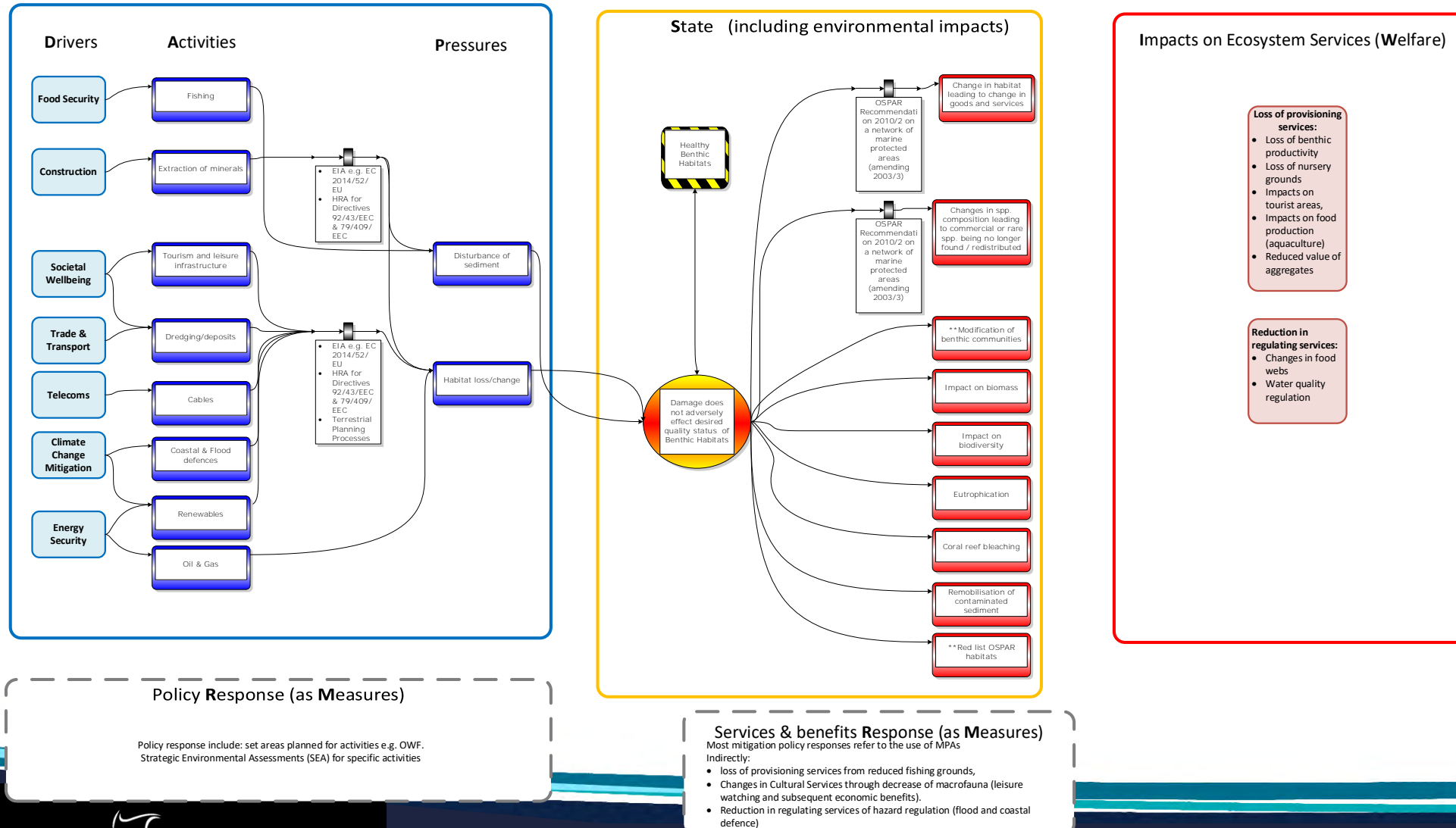
# Benthic habitats - fisheries



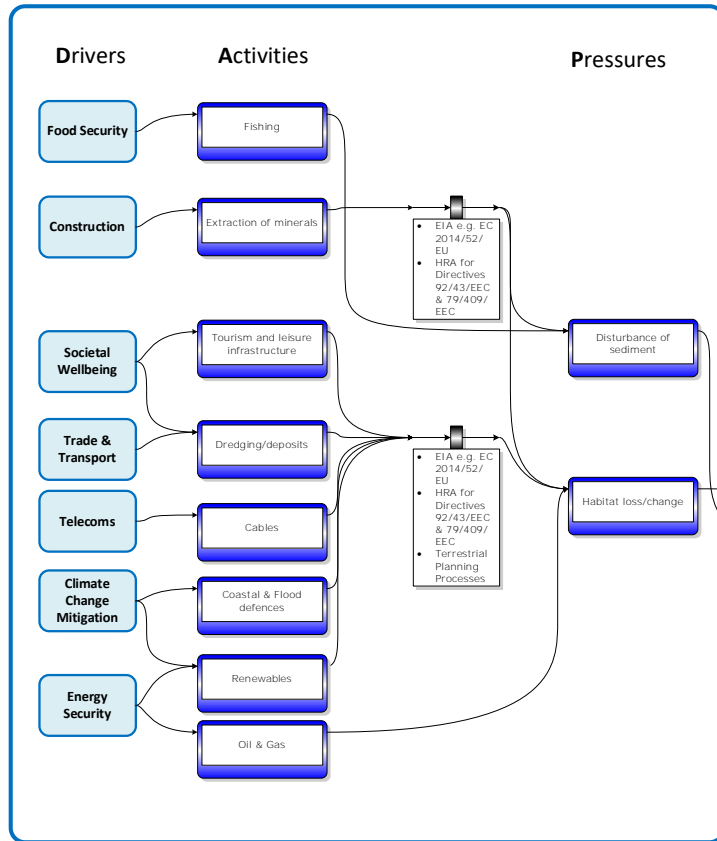
# Benthic habitats – aggregate extraction and fisheries



# Benthic habitats – full bow tie analysis





# Benthic habitats – full box



**Policy Response (as Measures)**

Policy response include: set areas planned for activities e.g. OWF.  
Strategic Environmental Assessments (SEA) for specific activities

Please consult the [associated guidance document](#) (updated 25/05/2021) for more information on how to populate this template and associated content, including all the elements of the DAPSIR framework, the Bow-Tie Analysis, and the section on climate change.

QSR template for Thematic Assessments

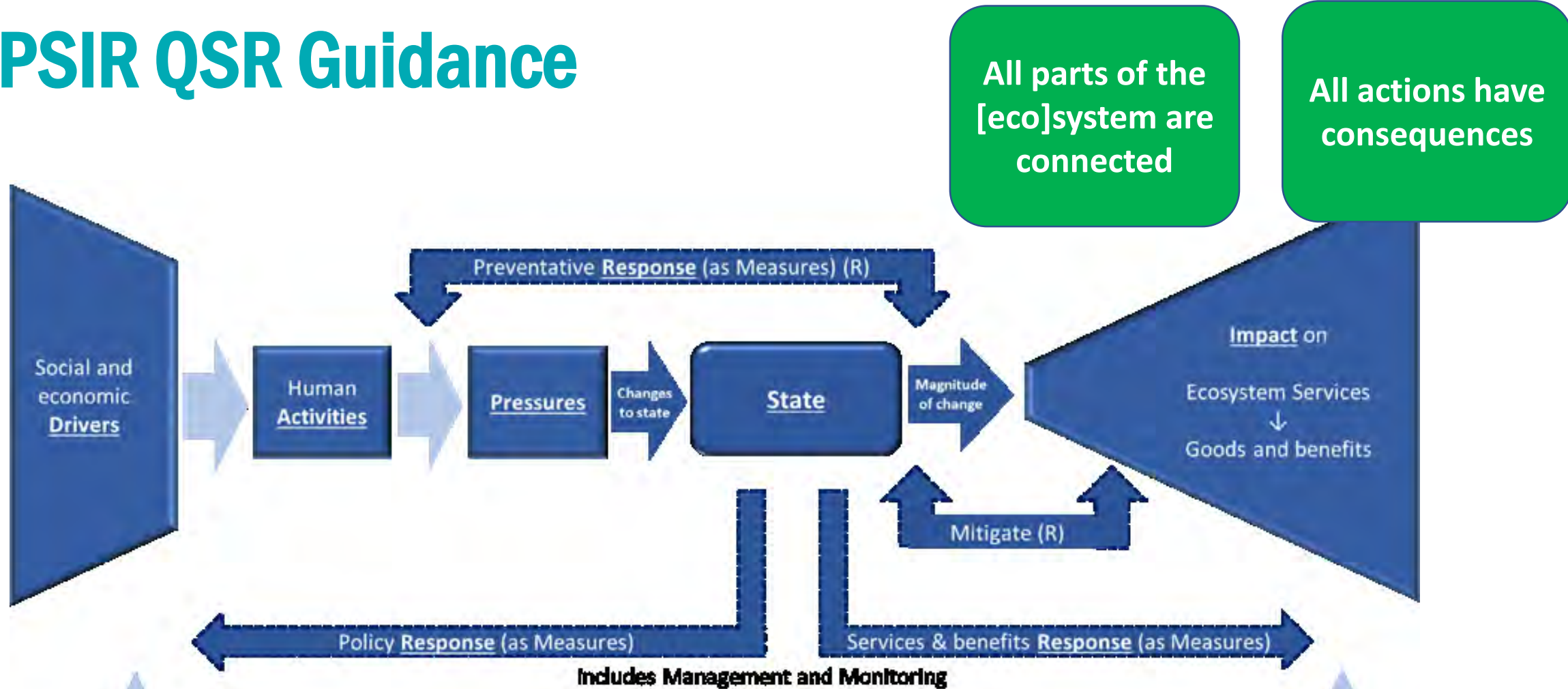
Submitting thematic assessment material

<b>Drivers</b>	
<b>Activities</b>	
<b>Pressures</b>	
<b>State</b>	
<b>Impact</b>	
<b>Response</b>	

(Welfare)



# DAPSIR QSR Guidance



All parts of the [eco]system are connected

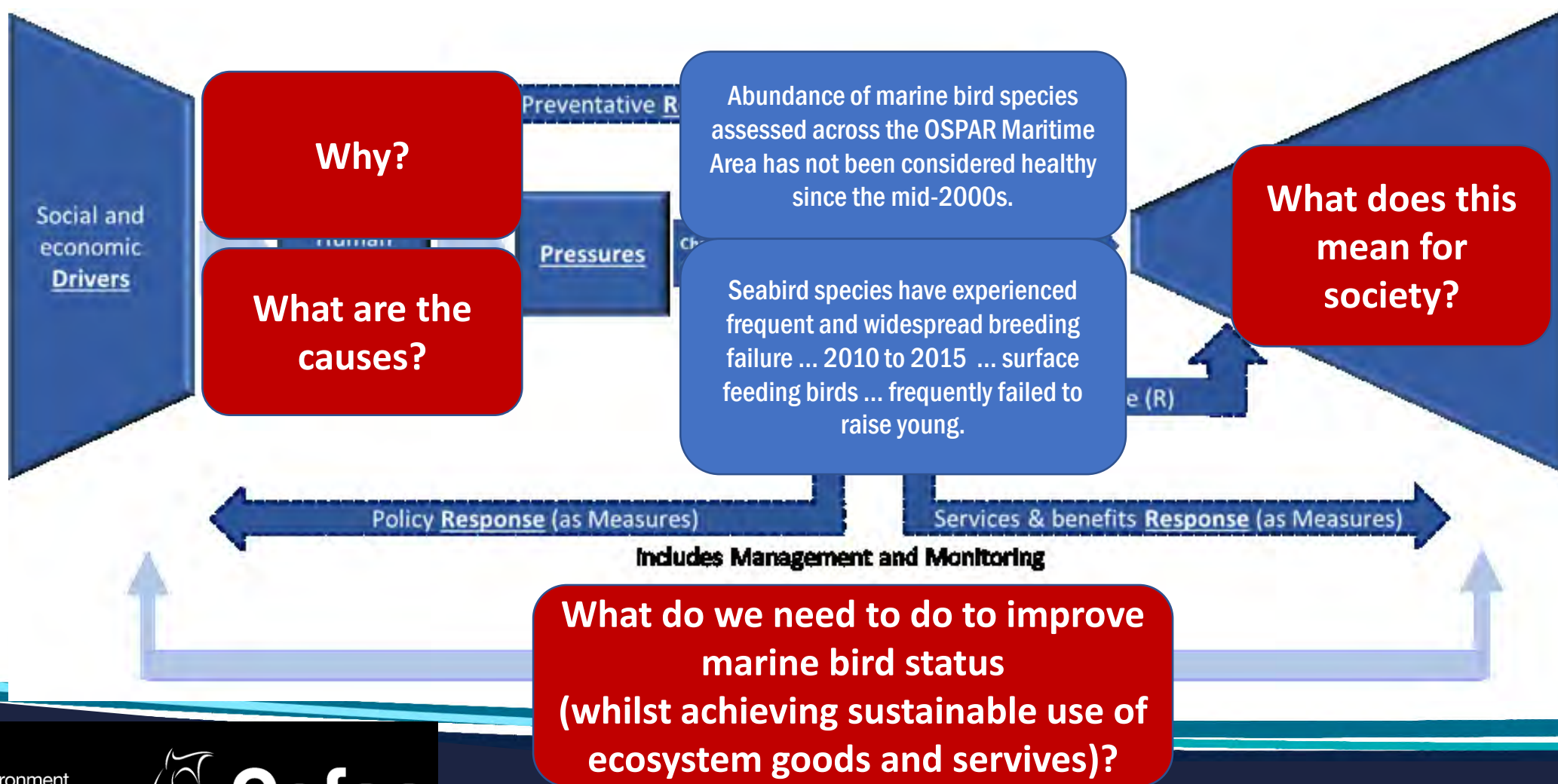
All actions have consequences

No component can be managed independently

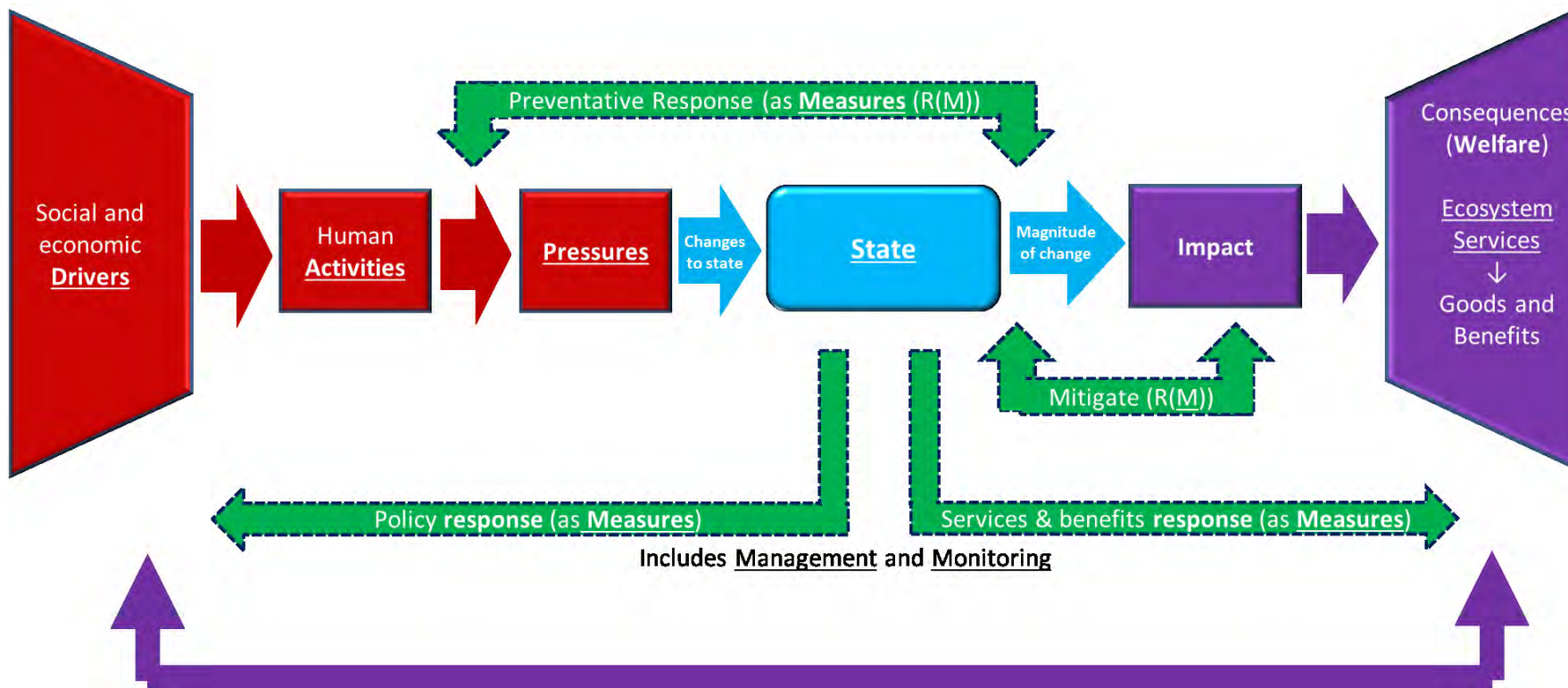
Management responses need to be targeted and proportionate

Sustainable Development Goals require holistic assessments

# DAPSIR QSR Guidance



# DAPSIR workstreams



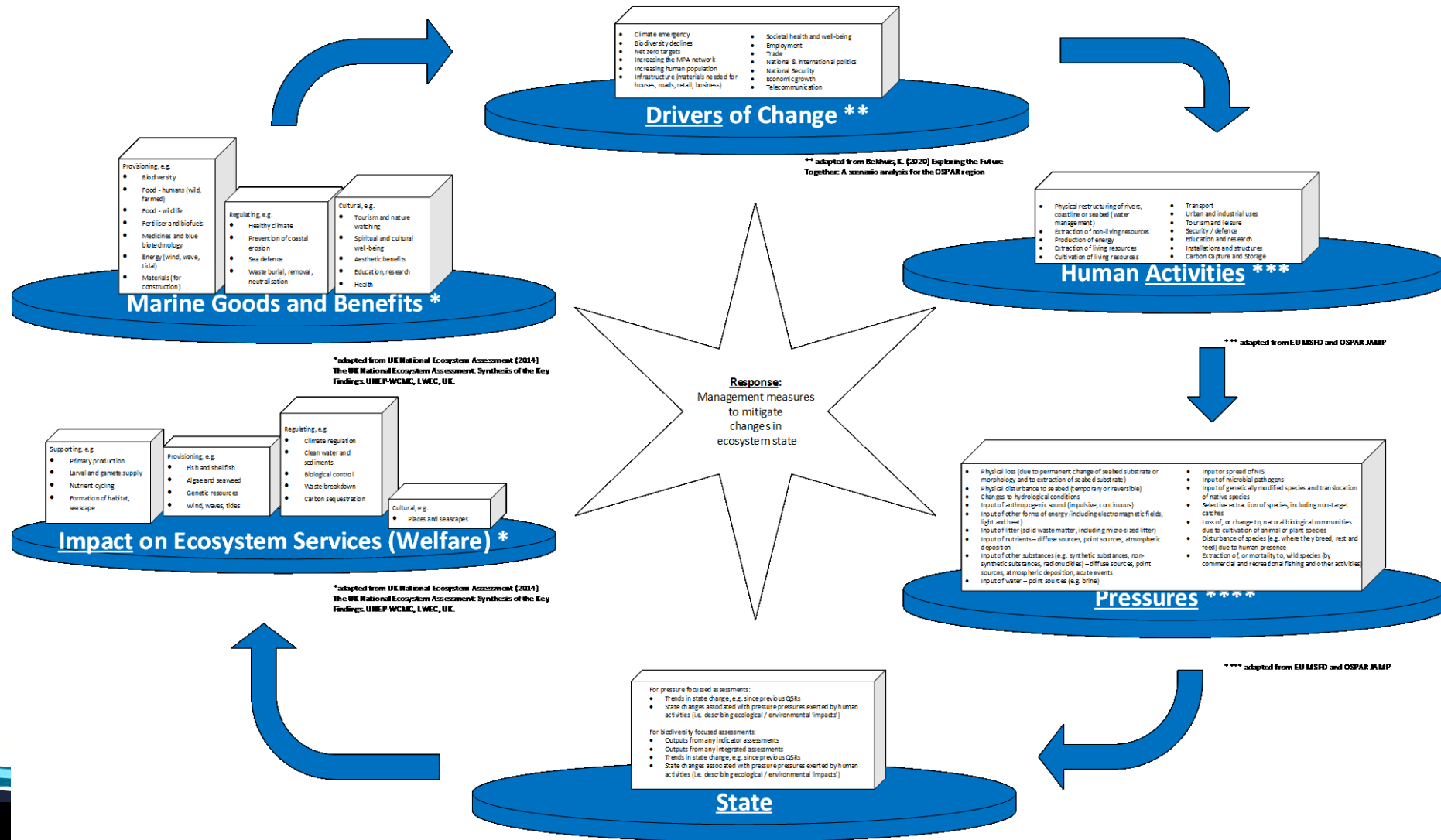
ICG-EcoC, ICG-ESA, EIHA +  
BiTA Project on DAP  
(Contractor – Cefas)

Thematic Assessment Leads  
+ NEA PANACEA

ICG-ESA Project – Impact on  
Ecosystem Services  
(Contractor – Federico  
Cornacchia)

BiTA Project on Responses  
(Contractor – Emily  
Corcoran)

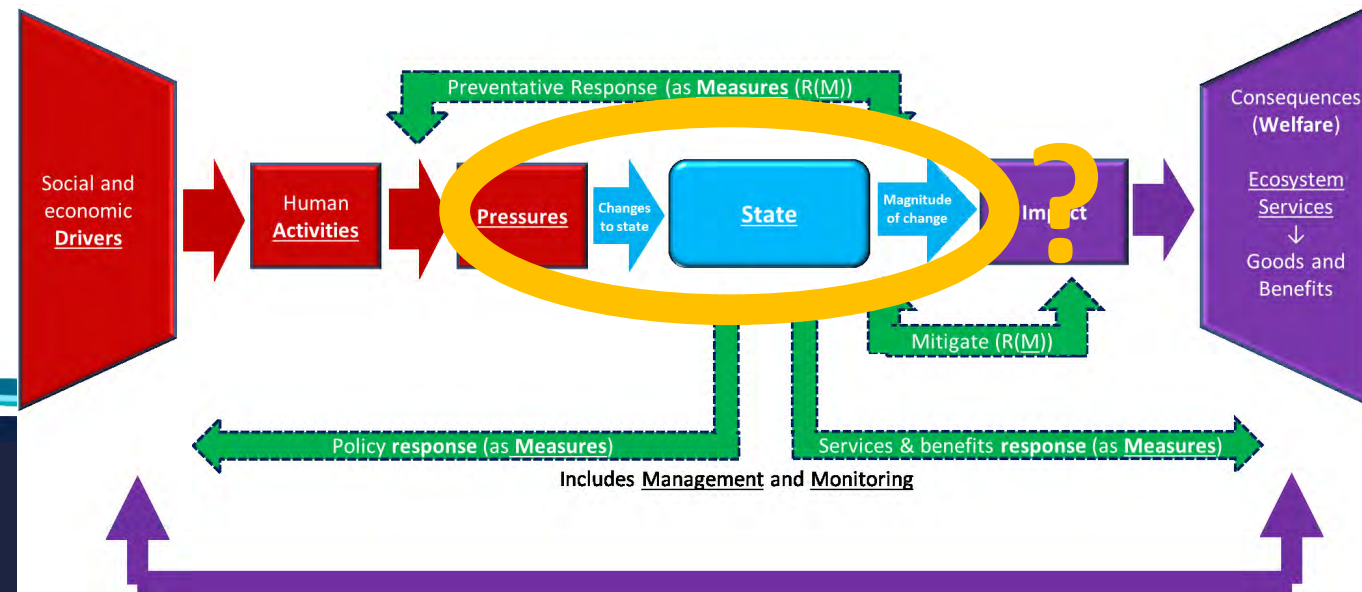
# DAPSIR standard list and definitions



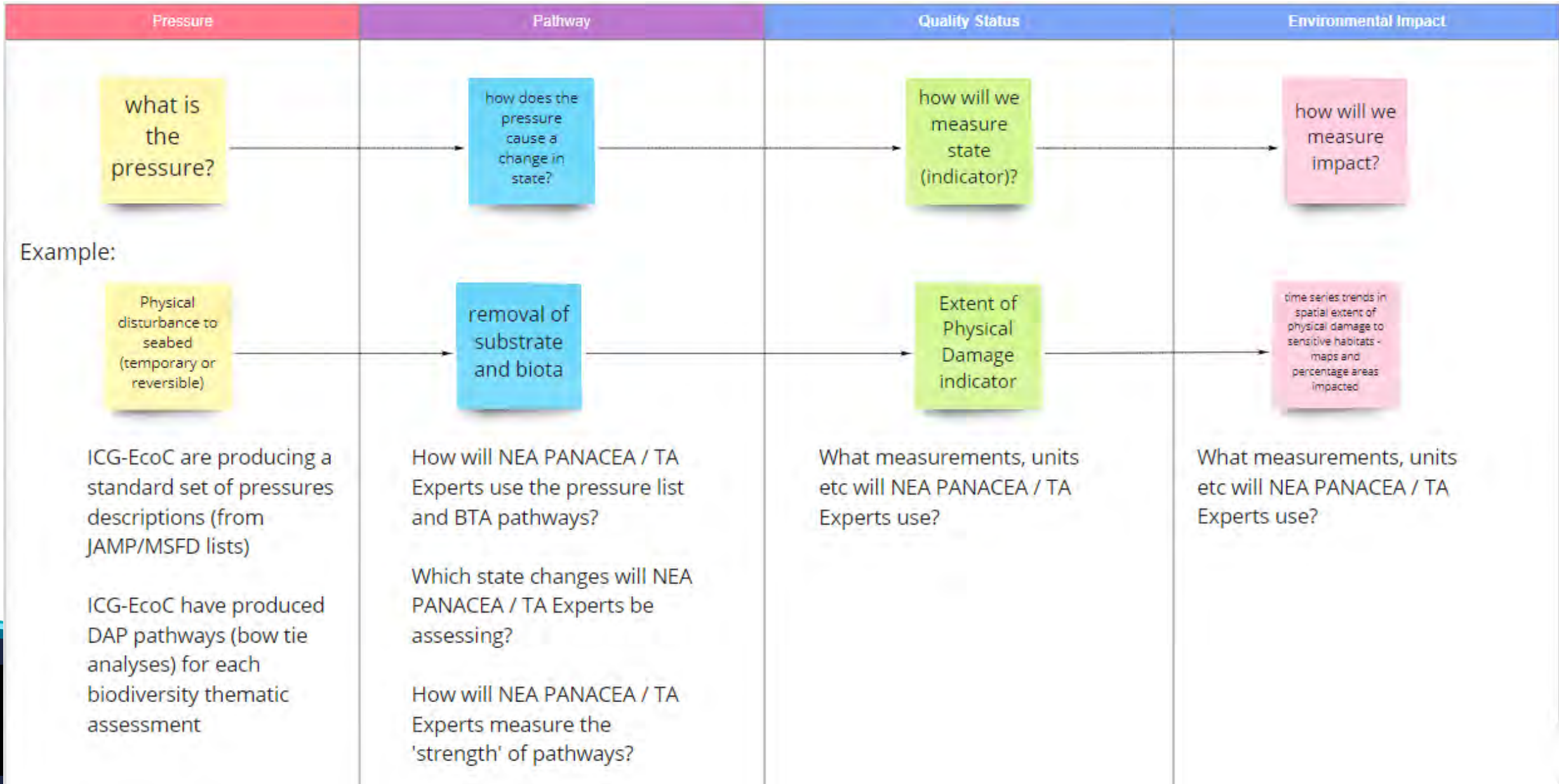
# Collaboration – connecting DAPSIR for QSR

ICG-EcoC, ICG-ESA, BiTA & committee (EIHA, HASEC, OIC, RSC) workstreams describing relative relationships for DAP-IR

- How will thematic assessment experts / NEA PANACEA use the bow tie analyses and DAP-IR outputs?
- Is the focus of biodiversity thematic assessment experts / NEA PANACEA project to describe S?
- Will Biodiversity thematic assessment experts / NEA PANACEA project quantify:
  - Pressure – state changes?
  - Environmental impacts?
- If yes, how?
- If no, will these be discussed qualitatively?



# MIRO exercise with Experts





# Thank you for listening



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## Thematic Assessments – DAPSIR and OAP

Update by the ICG-EcoC co-convenor

**Issue:** To note the workstreams and collaborations in place to apply the DAPSIR framework to drafting of the Thematic Assessments for the QSR 2023 and proposals for presenting these on the OAP.

### Background

1. [Elliot et al 2017](#) describe how **Drivers** of basic human needs require **Activities** which lead to **Pressures** which can lead to changes in **State** (environmental impacts on the natural system) which lead to **Impacts** on Ecosystem Services which in turn influence the Drivers. These interrelationships require **Responses** (as Measures). The complexity of any managed sea area in terms of multiple interlinked drivers, activities, pressures, receptors and impacts requires an understanding and analyses of the connectivity between these parameters.

2. To accommodate this complexity the [QSR 2023 Guidance document](#), thematic assessment [template](#) and [guidance](#) set out the requirement to use Drivers Activities Pressures State Impact response DAPSI framework to describe the interrelationships between environmental, social and economic causes and consequences of state changes to provide a practical application of the [Ecosystem Approach](#) (Figure 1).

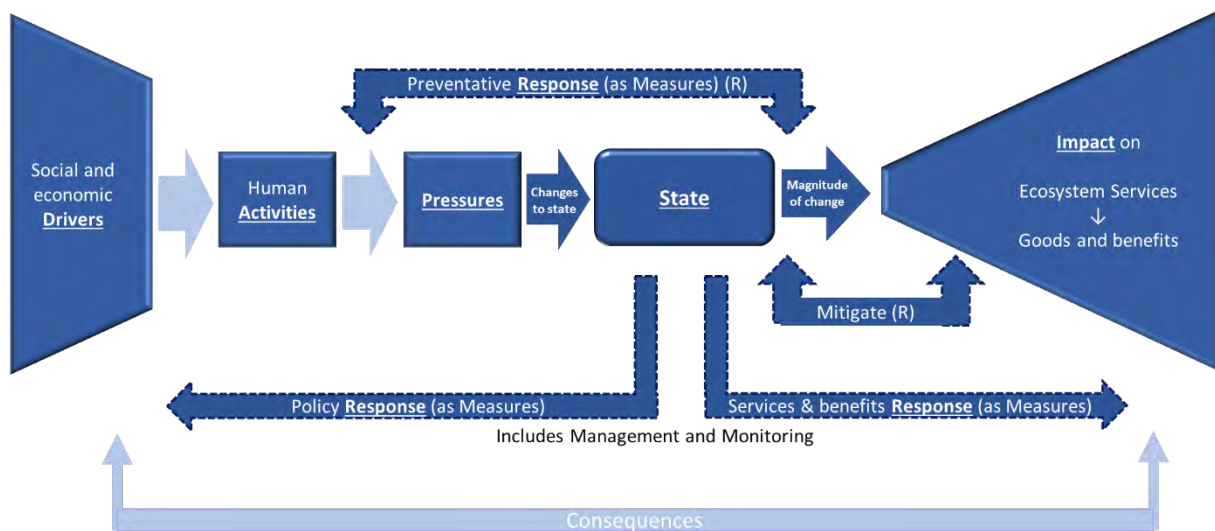


Figure 1. Framework to underpin thematic assessments<sup>1</sup>. This schema is compatible with the European Commission Staff Working Document DAPSES-MMM framework.

<sup>1</sup> (Developed by Cefas ([Judd & Lonsdale, 2021](#)) within the OSPAR ICG-EcoC



3. The [OSPAR JAMP](#) and [EU MSFD Annex III](#) provide the standard lists of human **activities**, **pressures** and ecosystem components to be used in the assessments of quality status (OSPAR) and good environmental status (EU) (**state**). Figure 2 is an annotated representation of the DAPSIR framework (Figure 1) demonstrating the relationships and interconnectivity between the multiple elements based on standard lists.

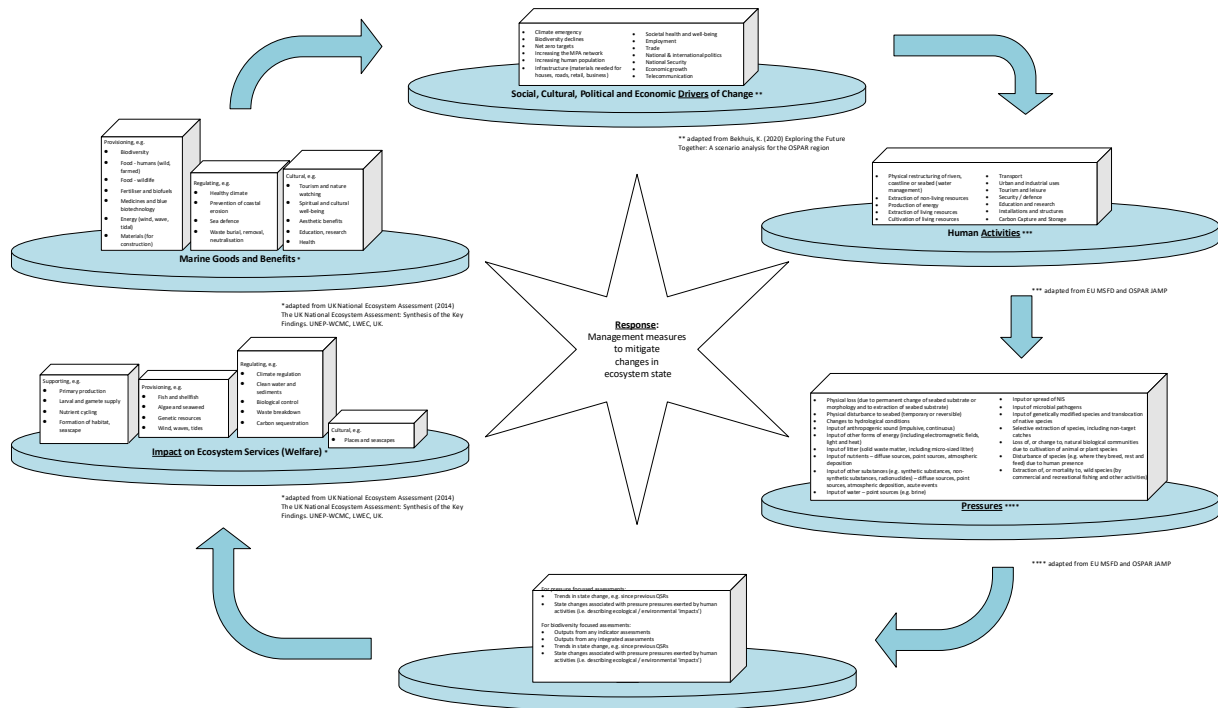


Figure 2. Annotated DAPSIR framework demonstrating how standard lists underpin thematic assessments (NB. This figure will be updated when work described in paragraph 4 has completed)

4. The ICG-EcoC co-convenor has discussed the work to produce generic descriptive texts for each of the DAPSIR elements with the Secretariat, and agreed that these can sit in each of the appropriate sections in OAP, to facilitate users understanding and provide context. It will be necessary to ensure that the information doesn't overwhelm or confuse the reader as it will be necessary for some repetition information in each of the assessments. The standard lists and descriptions of drives, activities, pressures and ecosystem services for use in all thematic assessments are on [Sharepoint](#).

## Collaboration to produce thematic assessments (DAPSIR components & Bow Tie Analyses)

5. At the superCOBAM meeting on the 21<sup>st</sup> October 2021 the co-convenor of ICG-EcoC presented the use of the DAPSIR framework to structure the thematic assessments in the QSR 2023 (see **Annex 1** – superCOBAM – ICG-EcoC presentation). A summary of the questions raised in the 'chat' and responses are provided in **Annex 2** – superCOBAM – ICG-EcoC plenary chat on DAPSIR.

6. OSPAR has work underway to write generic descriptive narratives for each:
  - i. activity and pressure (ICG-EcoC / BiTA building on work in the Human Activity Thematic Assessment (EIHA))

- ii. driver (ICG-EcoC / BiTA building on work in the Human Activity Thematic Assessment (EIHA) and [future scenarios assessment](#) (ICG-ESA)
- iii. impact on ecosystem services (ICG-ESA)
- iv. responses (BiTA)

Figure 3 below illustrates the division of this work for the biodiversity thematic assessments under the guidance of BiTA.

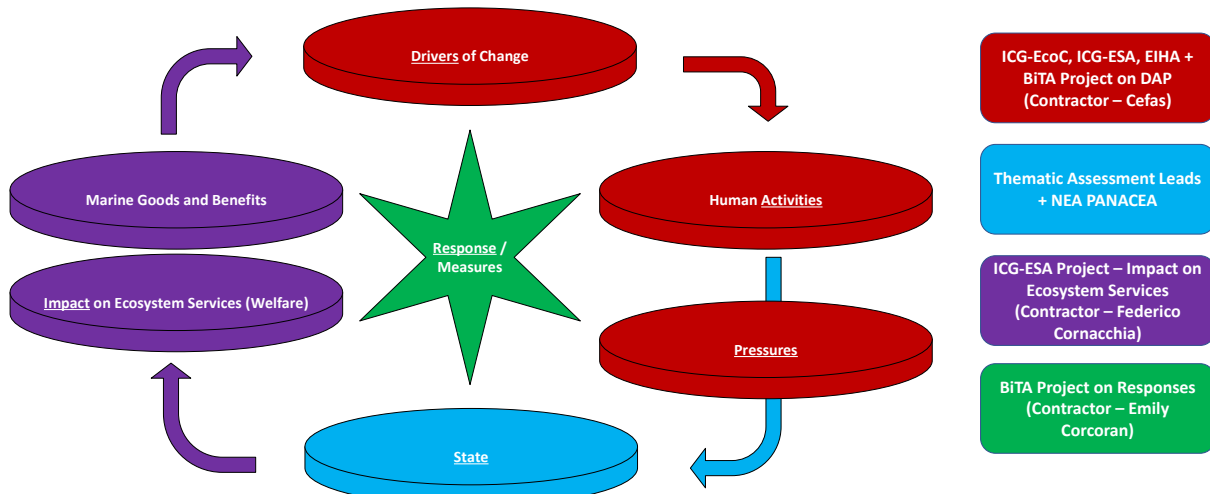


Figure 3. Division of the integrated DAPSIR workstreams for the biodiversity thematic assessments

7. ICG-EcoC are pre-populating the thematic assessment templates with DAP narratives (linked to the standard descriptions but specific to the theme). Thematic Assessment leads will need to focus their analyses and drafting of narratives in the [template](#) to expand (where necessary) descriptions of the mechanisms through which pressures from human activities lead to changes in ecosystem state. For the biodiversity thematic assessments these considerations are being addressed (for some ecosystem components, i.e. marine birds, benthic habitats, pelagic habitats) by the NEA PANACEA project.

8. DAPSIR provides a unifying framework to ensure consistency and communication between thematic assessments but in order to identify, understand and analyse the connectivity between multiple parameters we need to describe the individual and collective pathways of causes and consequences of changes in state. ICG-EcoC have introduced the risk analysis tool bow tie analysis (BTA) to identify and assess these pathways.

9. Bow tie analysis is a risk assessment tool designed to identify hazards so that they can be managed to prevent impacts (or where impacts have occurred to mitigate their effects). Focusing the BTA on the data associated with OSPAR suite of indicators ensures that there are sufficient data for the analyses of collective pressures. For example, if we consider the seabed, the objective is to sustainably manage human activities to prevent damage to benthic habitats whilst recognising the drivers of human need behind those activities, and the consequences of any management interventions on those drivers, alongside the protection that may be afforded. Figure 4 breaks down interlinked components extracted from the bow tie analysis for benthic habitats to show the DAPSIR pathway of linkages for:

- a. seabed disturbance arising from aggregate extraction.
- b. seabed disturbance arising from bottom trawl fisheries.

c. seabed disturbance from aggregate extraction and bottom trawl fisheries combined.

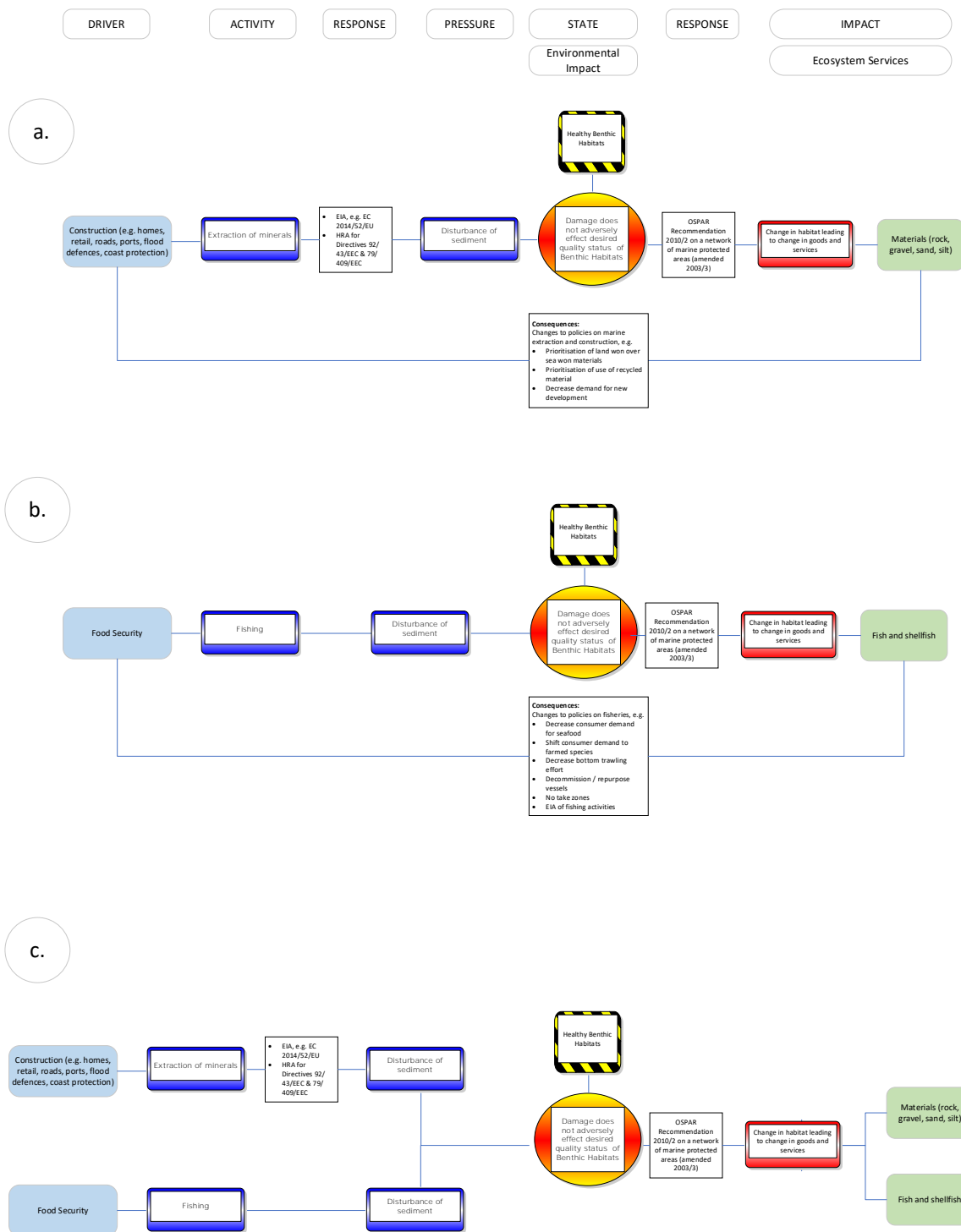


Figure 4. DAPSIR-bow tie analysis example for benthic habitats (extract only)

10. Management responses to prevent changes (e.g. environmental impacts assessment (EIA) and Habitats Directive Assessment) and mitigate changes (e.g. network of MPAs) are included – we can also consider how effective these measures are in reducing pressure on species and habitats and identify where there are gaps in measures and how we might fill them. Considering measures in this way also allows us to consider unintended consequences of actions, e.g. banning an activity may afford biodiversity gains but could have adverse environmental, social and economic consequences

which may need to be compensated (e.g. displacement of fishing activity outside of a protected site to areas not previously fished or over larger areas to ensure an equal catch (decreased catch per unit effort).

11. Impacts on ecosystem services are also identified and (a) and (b) demonstrate how these have consequences for the drivers and if/how policies may need to change for equitable solutions to environmental, social and economic considerations in line with the application of the [ecosystem approach](#). ICG-ESA are progressing work on the Impact on ecosystem services will be meeting with thematic assessment leads to ensure needs are understood and mechanisms for collaboration established.

12. ICG-EcoC are considering if/how we could add weightings to the connections, e.g. with regards to Figure 4 is the greater concern for the condition of benthic habitats aggregate extraction or bottom trawl fishing? If we are able to progress this, we propose to follow the lead of the ICES Ecosystem Overviews which convened a small panel of experts to consider and rank relationships by expert judgement.

13. The DAPSIR narratives in the thematic assessment [templates](#) are expanded from these skeleton BTA pathways individually and collectively. There are various ways in which these collective pathways can be described and presented, all by definition are complex. So, no apology is made for the complexity of the full version BTA for benthic habitats shown in Figure 5 (expanded from Figure 4). Figure 5 demonstrates the complexity which all managers face of identifying, assessing and managing interrelated demands. BTA provides a systemic approach to the consideration of this complexity and demonstrates that activities and pressures cannot be managed unilaterally.

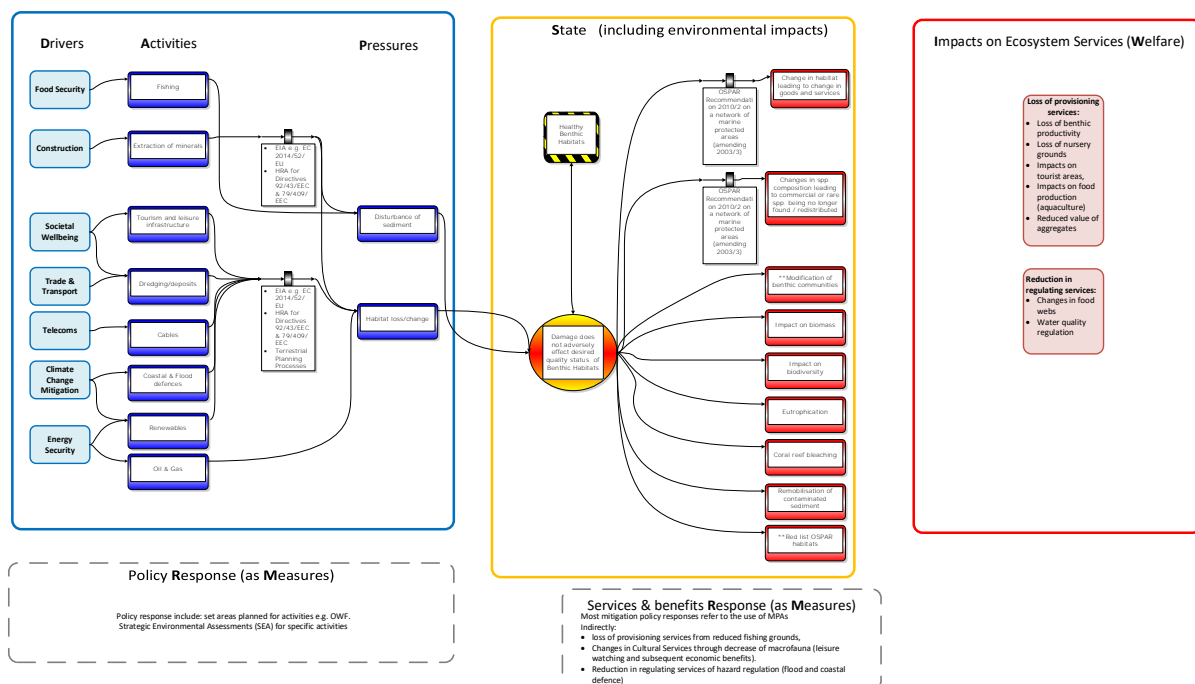


Figure 5. DAPSIR-bow tie analysis example for benthic habitats (complete)

14. The ICG-EcoC DAPSIR-BTA approach provides the basis for the first fully integrated Quality Status Report combining environmental, social and economic considerations in line with the [ecosystem approach](#). This systemic integration is focused on the thematic assessments. Working

under this unifying framework allows us to integrate workstreams from different committees. The example in Figure 5 brings together knowledge and outputs from the Benthic Habitats Expert Group (plus BDC, COBAM & BiTA), EIHA, ICG-ESA and ICG-EcoC.

15. The DAPSIR approach for the QSR has been designed to be future proofed to allow for advances in analytical techniques. For example, the report “[Natural capital accounting for the North East Atlantic](#)” produced by ICG-ESA demonstrates how with relatively little effort existent OSPAR indicators and workstreams can be expanded to produce physical accounts (extent, condition and flows), with a direct correlation between the DAPSIR outputs describing how state changes affect ecosystem services (the S and I) with natural capital accounting outputs describing stocks and flows. These physical accounts are the basis for any monetary accounting of asset supply and use.

16. DAPSIR and BTA are being used to identify the parameters to be included within the thematic assessments (QSR inputs). The approach can also be used to summarise the QSR outputs in the BTA section in each thematic assessment. For example, ‘simplified’ BTAs describing the trend relationships between the DAPSIR components could be produced (where the information is available in thematic and other assessments). The mock up in Figure 6 show how we could present the relative relationships between trends in activities, pressures, state and ecosystem services. The underlying approach equates to that used in the regional summaries in the QSR 2010, see:

- Chapters 9 - Table describing [regional summary of past trends and outlook for human activities](#);
- Chapter 10 – Table describing delivery of [OSPAR Strategy objectives for biodiversity and ecosystems](#);
- Chapter 11 – Table 11.3 showing [ecosystem component and human activity / pressure relationships](#); and
- Chapter 12 – Figure 12.1 [qualitative summary of regional status](#).

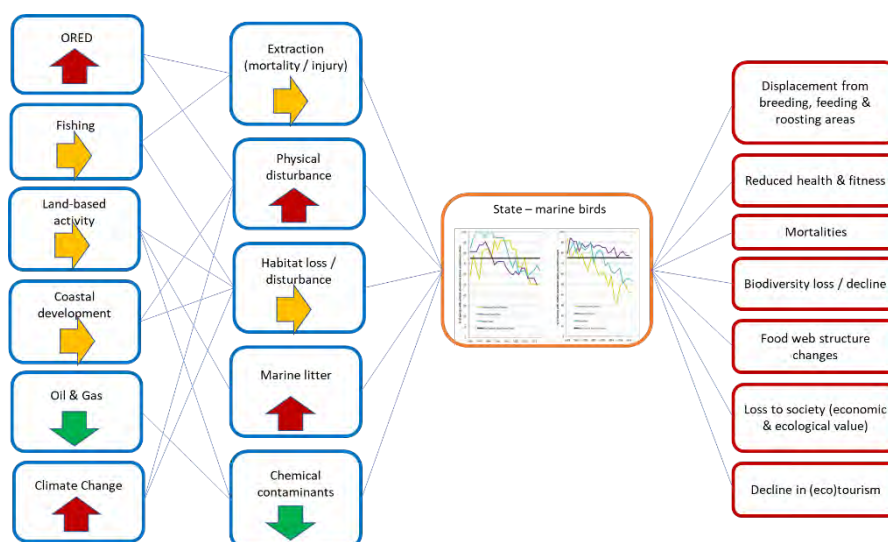


Figure 6. Bow analysis summary of trends (content used for illustrative purposes only)

## superCOBAM – ICE-EcoC exercise on Pressure – State relationships (measuring change)

16. A virtual whiteboard exercise with the biodiversity expert group leads was undertaken at the superCOBAM meeting. The purpose was to gain understanding of the pressure – state pathways leading to state changes to be considered in the thematic assessments (building on the ICG-EcoC BTA work) and consider how environmental impacts would be considered / assessed. As we were working in a virtual environment it was difficult to manage the exercise, so the outputs will require some unpicking. Effectively, what the expert group leads produced was a series of mini, unstructured BTAs (of pressure – state relationships) for the different biodiversity thematic assessments, overlapping on a single sheet (see **Annex 3** superCOBAM – ICG-EcoC Pressure-State Exercise MIRO). This could also provide useful for the QSR synthesis report.

# SuperCOBAM workshop report Annex H

## Adrian Judd's answers to questions

**From Matt Parsons to Everyone: 10:33 AM**

Adrian -does the bow-tie allow/require input of numerical values or just narrative ones? And are the outputs always narrative?

**Response:** Answered in the meeting but to reiterate, the bow tie analyses so far just make connections between the DAPSIR components (i.e. all associations weighted equally). However, where any of the associations can be quantified these can be incorporated to describe the strength of the connections. Where, they cannot be quantified we could (if appropriate) apply expert judgement to weight connects (and apply confidence scores where we are combining qualitative and quantitative outputs or decide to keep these separate). We need to be guided by NEA PANACEA and thematic assessment leads on what quantification is being applied to which connections (and which are not). If we apply expert judgement, we will most likely follow the lead of the ICES Ecosystem Overviews and convene a group of experts to apply weightings (see link provided in NL - Lisette Enserink to Everyone: 11:06 AM).

**From NL - Lisette Enserink to Everyone: 11:06 AM**

example of ICES ecosystem overview: see Figure 3:

[https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.ices.dk%2Fsites%2Fpub%2FPublication%2520Reports%2FAdvice%2F2018%2F2018%2FGreaterNorthSeaEcoregion\\_EcosystemOverview.pdf&psig=AOvVaw3KwLeYSTPxKeixcTIMhVaw&ust=1634896910691000&source=images&cd=vfe&ved=0CAsQjRxqFwoTcliAreaf2\\_MCFQAAAAAdAAAAABAD](https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.ices.dk%2Fsites%2Fpub%2FPublication%2520Reports%2FAdvice%2F2018%2F2018%2FGreaterNorthSeaEcoregion_EcosystemOverview.pdf&psig=AOvVaw3KwLeYSTPxKeixcTIMhVaw&ust=1634896910691000&source=images&cd=vfe&ved=0CAsQjRxqFwoTcliAreaf2_MCFQAAAAAdAAAAABAD)

**From Peter Anton Upadhyay Stæhr to Everyone: 10:47 AM**

Is the aim to produce a DAPSIR analysis for each CP? and will the analysis be performed / facilitated by each of the expert groups?

**Response:** Answered in the meeting but to reiterate, the QSR (including DAPSIR) is applied at the North East Atlantic, and where appropriate, OSPAR Regions scale. The biodiversity thematic assessments are facilitated by BiTA, ICG-EcoC are supporting drafting the DAP narratives, Emily Corcoran the R narratives and Federico Cornacchia the I (ecosystem services) narratives. The expert groups are focussing on S but there needs to be dialogue to ensure alignment and connectivity of the workstreams.

**From NL - Lisette Enserink to Everyone: 10:48 AM**

Adrian, you refer to the ICES ecosystem overviews. They have interactive 'horrendogrammes' with arrows with different widths reflecting the relative importance. Is that also an output you're aiming for?

**Response:** This is something we are considering (not necessarily exactly the same but following similar logic). We have included this in the update for ICG-QSR. We were involved in the development of some of the ICES Ecosystem Overviews and for those an expert panel was convened to determine the strength of the connections (width of the arrows). ICES have only consider the APS connections. The ICG-ESA project is considering the 'weight' of -ve and +ve relationships between state and ecosystem services.

**From AJelmert to Everyone: 10:52 AM**

Does the DAPSIR allow for/consider also positive /facilitating effects of activities ? E-g-: the example of wind farms has identifiable negative effects (through noise and seabird hits). But it may also have (possibly large) positive effects as "MPA s" (Wind farms will greatly reduce fishing activities and will provide 3d structuring in the afflicted area ?

Re DAPSIR & positive effects question from Anders J

**Response:** Answered in the meeting but to reiterate, experience from these exercise shows that contributors are quick to identify -ve effects and it takes some gentle persuasion to bring in +ve effects. Now is a good time for us all to identify +ve effects and where these need to be incorporated if these are lacking in the current bow tie analyses / thematic assessment templates on Sharepoint.

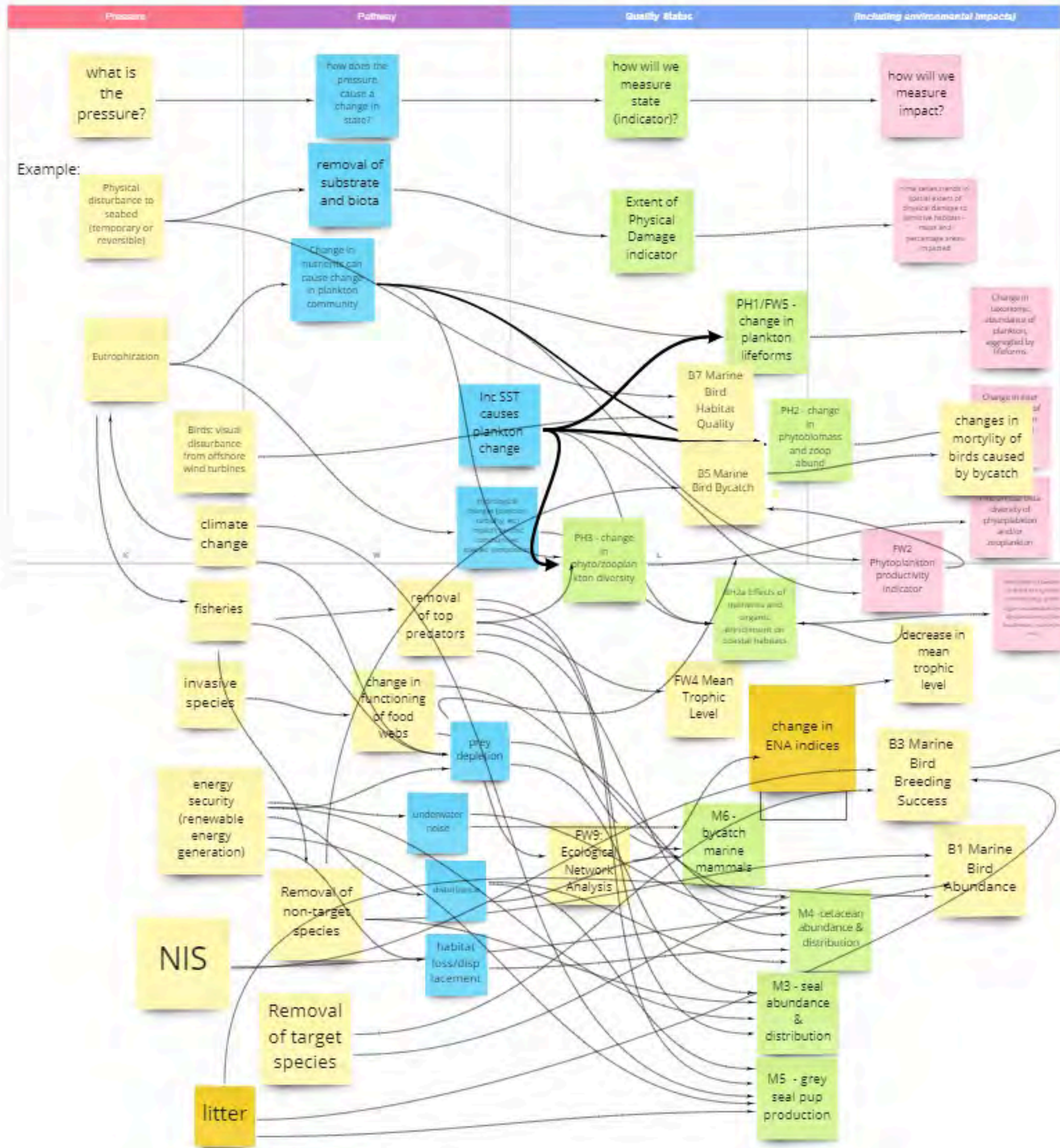
**From Sander Wijnhoven to Everyone: 10:59 AM**

Relative importance of relations is highly area and case specific I think; Indicators from different expert groups should provide insight in th relative importance of for instance different pressures in states, etc.

**Response:** Answered in the meeting but to reiterate, agreed, we need to be guided on this by the thematic assessment experts. Previous QSRs have separately described the relative importance of activities / pressures and ecosystem state at the NEA and OSPAR regions levels so in essence this is not something new. The big difference for the QSR 2023 is that we are considering the relationships (and where appropriate the relative importance) of the DAPSIR elements in an integrated way. We are hoping that NEA PANACEA will assist with quantifying some of these relationships.



For benthic, the extent of disturbed seafloor by bottom trawling fisheries is already a very limited and specific pressure type, so it will be a linear direct assessment of this pressure. The main gaps are on all the other 9 pressure types. There will be assessment of eutrophication effects, but no bow tie nor thematic assessment planned for QSR (under progress for Nea Pároussa).



modelling

modelled future population trajectory

quantity/which go on foodweb composition



**OSPAR**  
**COMMISSION**

*Protecting and conserving the  
North-East Atlantic and its resources*

# Developing the Biodiversity Thematic Assessment: Response Chapters

Super COBAM, 22 October 2021



# Plan for the next 30-40 mins

Introductions – who I am and what I am doing

A bit more about the R-Chapter

Developing an approach to take this forwards

Where are we now, what next – clarifying the plan

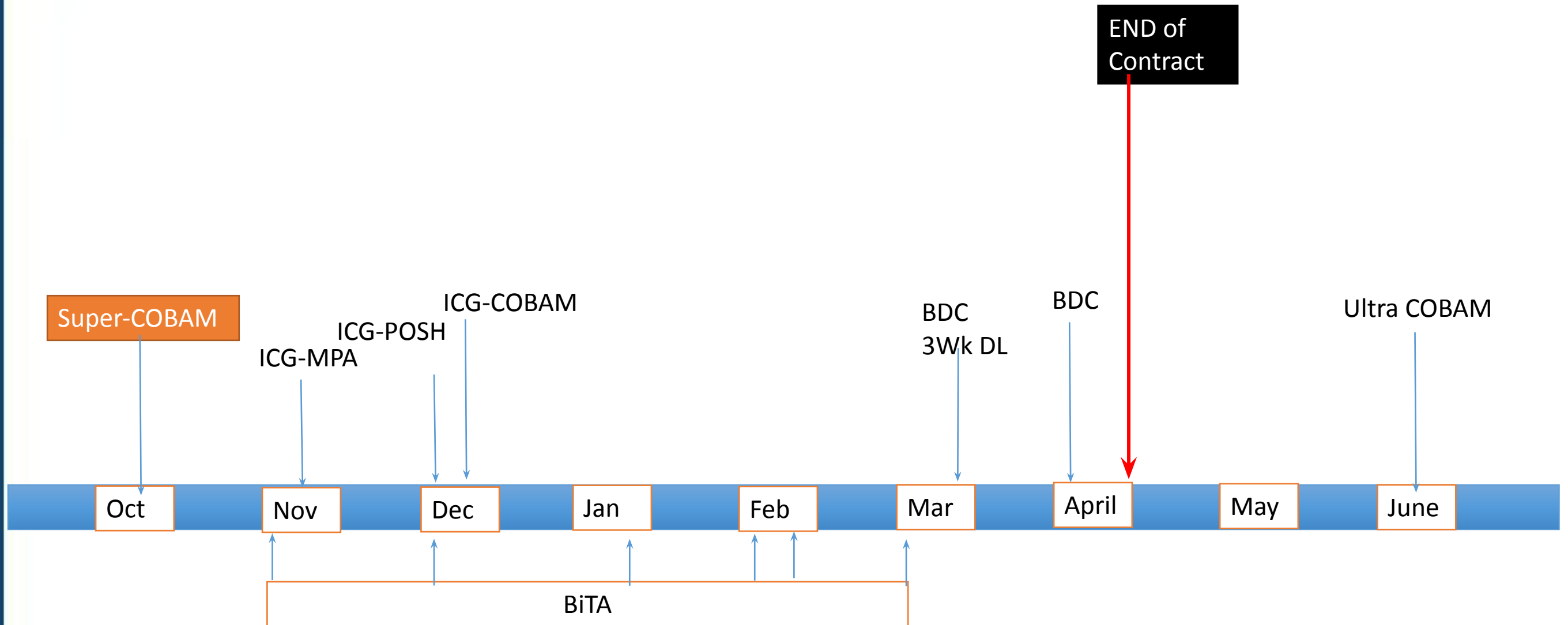
# Part 1: Introduction

1. Who am I?
2. What have I been contracted to do?
3. My timeline

# BDC Tender 1: Response/Measures chapter

- BiTA Technical assistance contract to develop the Response chapters and provide draft content.
- Help develop a concept of how OSPAR can assess sufficiency of measures; develop examples applying the sufficiency of measures approach for biodiversity measures as proof-of-concept;
- Elements to support on work linked to key OSPAR responses:
  - Help finalise the POSH 2019 overview assessment
  - Work with ICG-MPA task leads on the preparation of the 2021 MAP assessment

# Timeline and key milestones (1 July – 30 April)

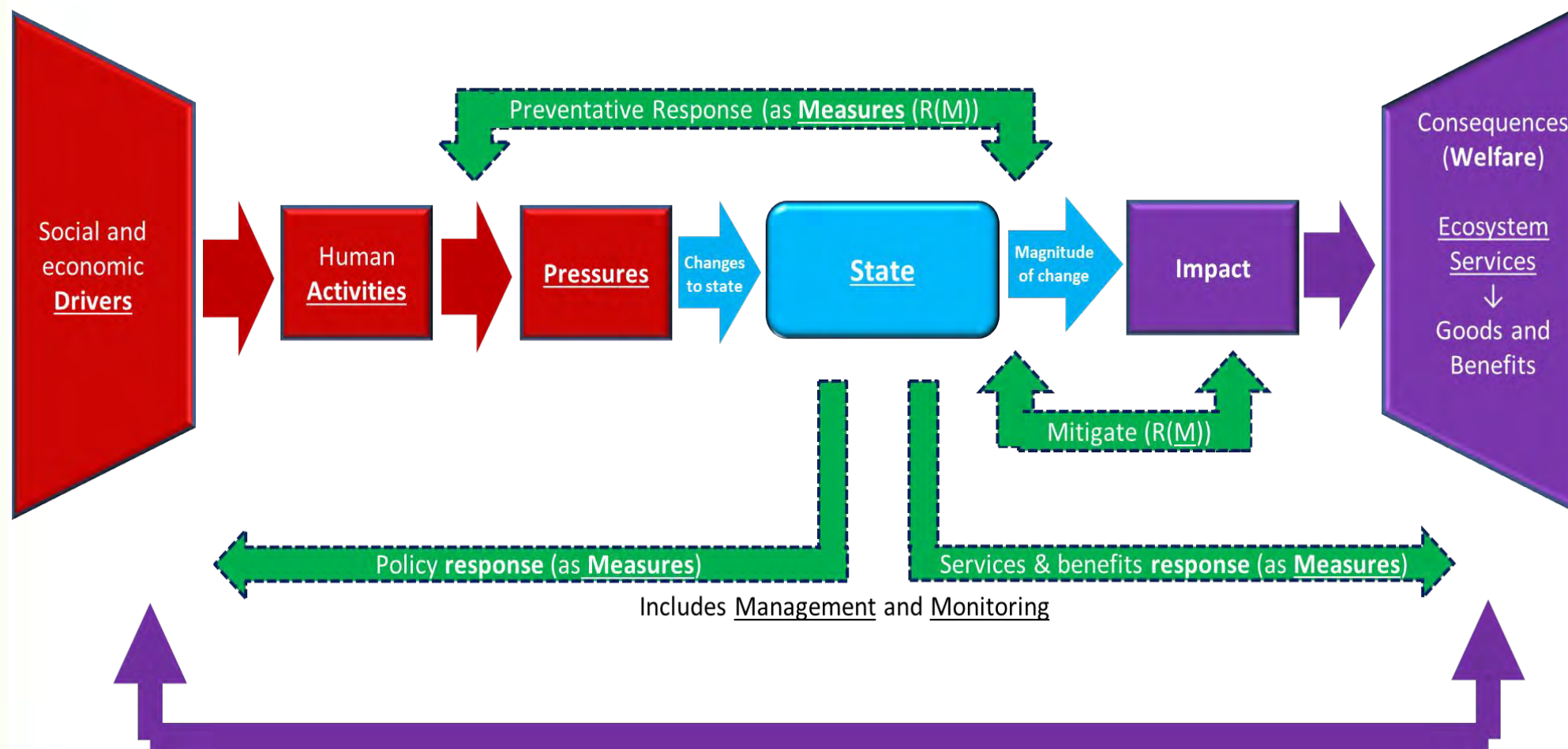


1 July  
2021  
START of  
Contract

## Part 2: The Response Chapters

1. Purpose of the R-Chapter
2. Response elements in the Bow Tie approach
3. Linkages/connection with other elements
4. Ambition for the chapter – what are we aiming for? What will it look like? What is the narrative?

# DAPSIR workstreams

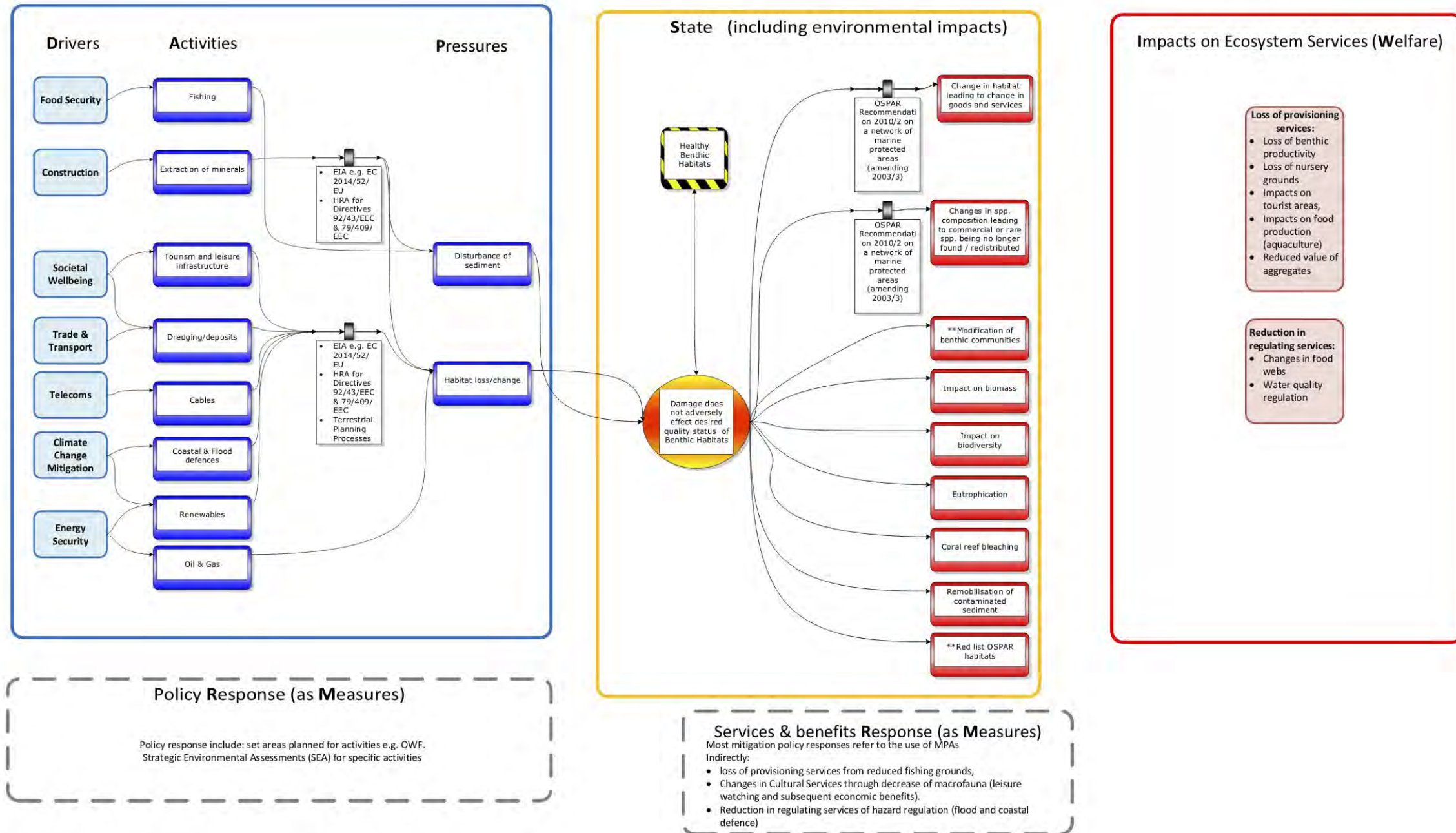




# What is the story? (in 5-6 pages)

- What is it that OSPAR has done to address the change in status?
  - Listed and taken measures to protect species and habitats considered to be under threat and in decline
  - Network of protected areas
  - Adopted measures to address specific activities and pressures
- Other measures taken to address relevant actions at different policy frameworks
  - EU, RFMOs, Arctic Council; Nordic Council
- Case studies of responses/ measures that have had an effect
- Summary of implementation? Evidence of impact? Information on barriers
- What can we say about variation across the 5 OSPAR Regions
- Can we say anything about gaps in policy response?

# The starting point and frame for the story...



## Part 3: Developing an approach

1. Theoretical approach – benefit from the experience of others!
  - Drawing on HELCOM SOM experience
2. Adapting the approach for OSPAR
3. Testing application of the approach



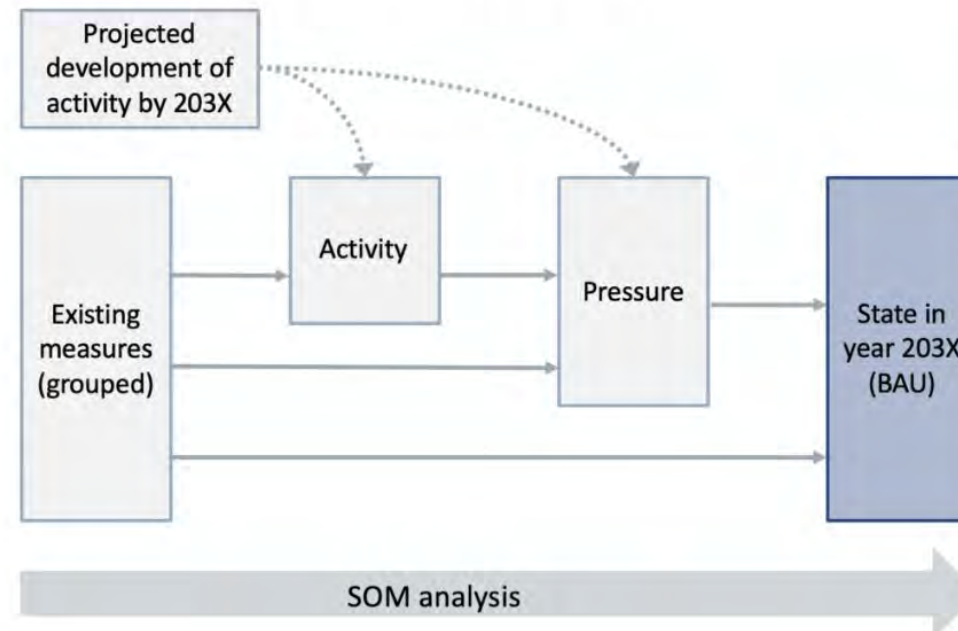
# Sufficiency of measures

The aim of the sufficiency of measures (SOM) analysis is to assess what kind of improvements in environmental state and pressures can be achieved with existing measures by 2030-2035, and whether these are sufficient to achieve good environmental status (GES) in the Baltic Sea. The information will be used to support the update of the BSAP and identification of new measures.

This is the first time the sufficiency of measures is assessed in this extent in the Baltic Sea region. It brings together natural and social sciences approaches and addresses multiple environmental topics (birds, mammals, fish, benthic habitats, hazardous substances, marine litter, underwater noise, non-indigenous species and input of nutrients). The same approach is applied across all topics to ensure comparability and coherence.

Sufficiency of measures analysis is carried out by the HELCOM SOM Platform and HELCOM ACTION project.

## Components of the SOM analysis



# Concept for the approach to understand effectiveness of measures

Step	Option for Biodiv Response
1. Existing measures and measure types	<ul style="list-style-type: none"><li>• Collation of existing measures</li><li>• Propose <b>focus</b> on OSPAR measures, but within the context of global/ regional measures incl EU with examples of national measures</li><li>• Trying to determine the most useful categorisation of measure types</li></ul>
2. Identifying main pathways for pressures using activity-pressure-linkage and how these relate to the measures	<ul style="list-style-type: none"><li>• Input from bowtie analysis + DAP chapters</li><li>• needs info on the most relevant pressures/ activities for each theme, to be able to focus efforts in the resources chapter drafting</li></ul>
3. Estimating the effects of measure types	<ul style="list-style-type: none"><li>• Reporting</li><li>• Literature</li><li>• Expert consultation</li></ul>

## Effectiveness

- Can the measure restrict the activity it is designed to restrict

## Impact

- Importance of the pressure being addressed x effectiveness x scale of measure
- does the measure succeed in reducing the pressure?

## Sufficiency

- Is what is being done enough to achieve a stated objective for status - e.g. GES
- OBS! for HELCOM this took 6 layers of analysis, produced a huge amount of output >> difficult to determine what was useful or not

Increasing level of ambition of analysis

# Collating existing measures: Scope and priorities

- OSPAR Measures: Decisions, Recommendations, Other Agreements
  - Network of protected areas
  - Listed and taken measures to protect species and habitats considered to be under threat and in decline
  - Adopted measures to address certain human activities and pressures
- Other regional measures
  - EU, RFMOs, Arctic Council; Nordic Council
- Global measures
  - IMO PSSAs; Ballast water agreement; UNFCCC Paris Agreement
- National measures
  - As case studies/ examples

# Sources of information

- OSPAR Matrix;
- MPA Assessment (especially ecological coherence work; possibly management status)
- POSH Recommendations/ status assessments
- OSPAR Implementation reports
- Indicator assessments
- EIHA Feeder Reports on key activities
- Reports of other relevant bodies (e.g. ICES reports/ assessments)
- Key EU reporting (e.g. relating to CFP; Birds Directive; Habitats Directive)



Response	URL	Year	Scale	Entity	Type of measure	KTM (MSFD)	Status of implementation	Description of implementation status (Narrative)	Activity	Pressure	Assumption on management of activity/ reduce impact on state	relative activity pairing
IMO guidelines for the control and management of ships' biofouling were adopted in 2011	<a href="https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/RESOLUTION%20MEPC.207[62].pdf">https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/RESOLUTION%20MEPC.207[62].pdf</a>	2011	Global	IMO					Transport and shipping			
IMO guidance on minimising transfer of invasive aquatic species as biofouling (hull fouling) for recreational craft (MEP.1/Circ.792)	<a href="https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/MEPC.1-Circ.792.pdf">https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/MEPC.1-Circ.792.pdf</a>	2012	Global	IMO					Transport and shipping			
MARPOL(Annex I - prevention of pollution from operational measures and accidental discharge); Annex II - (regulation of noxious substances); Annex V (discharge of waste from ships)	<a href="https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx">https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx</a>	1983 & 1988	Global	IMO					Transport and shipping			
PSSA designation (Wadden Sea; Western European waters)	<a href="https://www.waddenzee.nl/fileadmin/content/Dossiers/Overheid/pdf/PSSA_wsnl.pdf">https://www.waddenzee.nl/fileadmin/content/Dossiers/Overheid/pdf/PSSA_wsnl.pdf</a>	2002	Regional	IMO					Transport and shipping			
PARCOM Recommendation 88/1 on Measures to Reduce Organotin Compounds Reaching the Aquatic Environment through Docking Activities	<a href="https://www.ospar.org/documents?d=32441">https://www.ospar.org/documents?d=32441</a>	1988	Regional	PARCOM		WFD: 15 MSFD: 31			Transport infrastructure	loss/change Seabed disturbance Disturbance of		
OSPAR Recommendation 2016/01 on the reduction of marine litter through the implementation of fishing for litter initiatives	<a href="https://www.ospar.org/documents?d=35388">https://www.ospar.org/documents?d=35388</a>	2016	Regional	OSPAR	Technical; awareness	MSFD: 29			Fishing	Mortality/injury (Direct catch/ entanglement)	marine litter that could be ingested or cause entanglement; increased awareness of fishing	
Regulation on the conservation of fishery resources and the protection of marine ecosystems through technical measures (2019/1241)	<a href="https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1241&amp;from=EN">https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1241&amp;from=EN</a>	2019	Regional	EU					Fishing	loss/change Seabed disturbance Disturbance of		
Habitats Directive (including to specifically address bycatch (Dolman et al., 2020)	<a href="https://www.seawatchfoundation.org.uk/wp-content/uploads/2020/12/Dolman-et-al_2020.pdf">https://www.seawatchfoundation.org.uk/wp-content/uploads/2020/12/Dolman-et-al_2020.pdf</a>	2020										
RECOMMENDATION TO TEMPORARILY PROHIBIT THE USE OF GILLNETS, ENTANGLING NETS AND TRAMMEL NETS IN THE NEAFC REGULATORY AREA	<a href="https://www.neafc.org/system/files/rec-3_deep-water-gillnet-.pdf">https://www.neafc.org/system/files/rec-3_deep-water-gillnet-.pdf</a>	2006	Regional	NEAFC	Technical				Fishing	Mortality/injury (Direct catch/ entanglement)	Reduce mortality through entanglement	
NEAFC Scheme of Enforcement Art 7, 7a and 7b (Net marking, removal or disposal of unmarked or illegal gear; and garbage at sea and retrieval of lost gear)	<a href="https://www.neafc.org/scheme/Chapter2/article7">https://www.neafc.org/scheme/Chapter2/article7</a>	Amended 2021	Regional	NEAFC	Binding				Fishing	Mortality/injury (Direct catch/ entanglement)	Reduce mortality through entanglement	
										Mortality/	pressure on prey species, but perhaps	

# Linking measures to an Activity/pressure

- Need to know which pressures/ activities are most significant? (link to work on DAP)
- Link the measures to the activities/ pressures
- Is there evidence that the measures have had an impact on the activity/ pressure?

## Part 4: Progress and next steps

1. On going: Collating existing measures
2. On going: Understanding the 7 thematic assessments (nuances of each, capacity, timeline)
3. Next step: Developing a first attempt high level storyline

... all steps will need engagement with expert groups – and this will look different for each expert group.

	Birds	Fish	Mammals	Benthic	Pelagic	Food Web	NIS
Contact established	Matt, Volker, Stefano	Maurice	Anita	Laurent/ Cristina	Abigail	Ulrike	Peter
Developed timeline/ plan							
Resource/ ability to engage	Via NEA Panacea	Help write; after COBAM	No resource; assist with review	Via NEA Panacea			
Collation of existing measures	V1	In progress	V1	In progress			
Understandin g priority DAP							
Effectiveness of Measures							
Outline story	Testing						

# Timeline and key milestones (1 July – 30 April)

Develop/ Test  
approach

Plans for R-Chapter

Collation of measures

Link pressure-activity /understating effect

Draft R-Chapter content for review

END of  
Contract

Super-COBAM

ICG-MPA

ICG-POSH

ICG-COBAM

BDC  
3Wk DL

BDC

Ultra COBAM

Oct

Nov

Dec

Jan

Feb

Mar

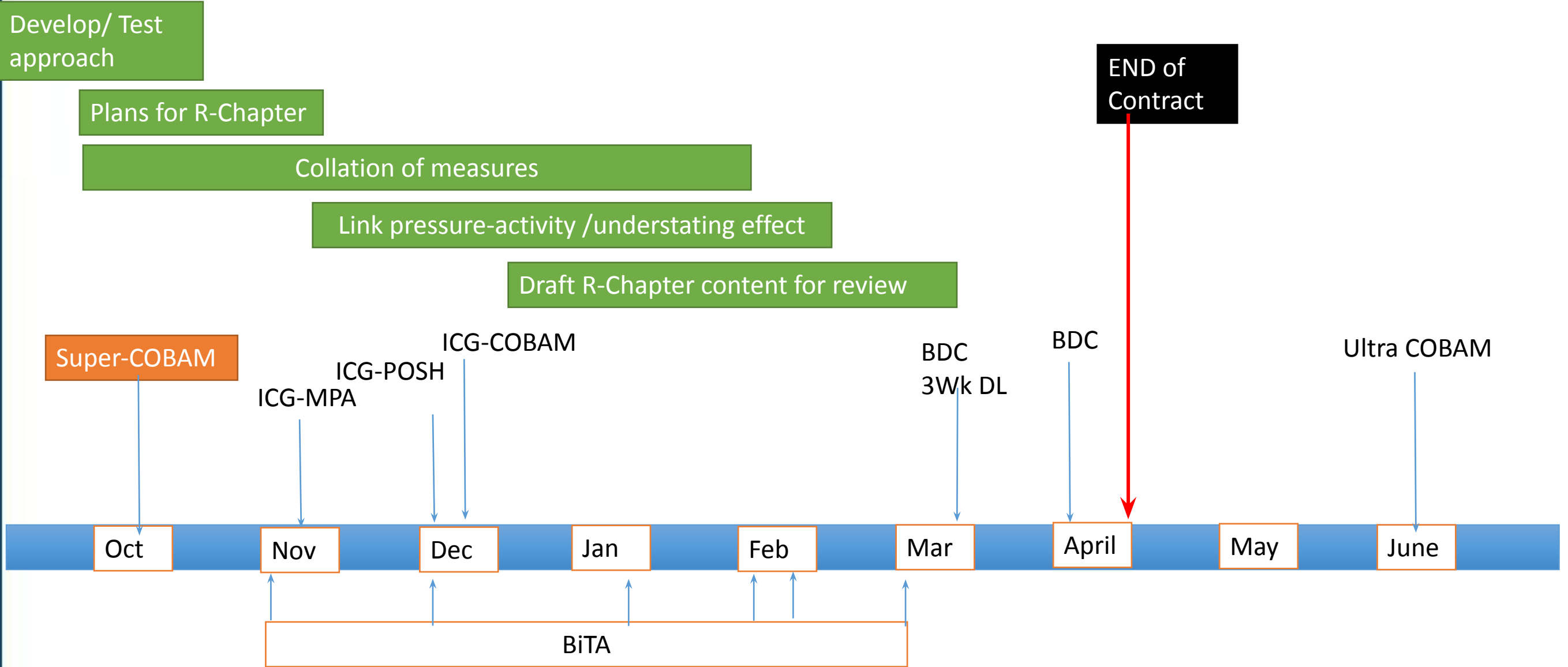
April

May

June

BiTA

1 July  
2021  
START of  
Contract

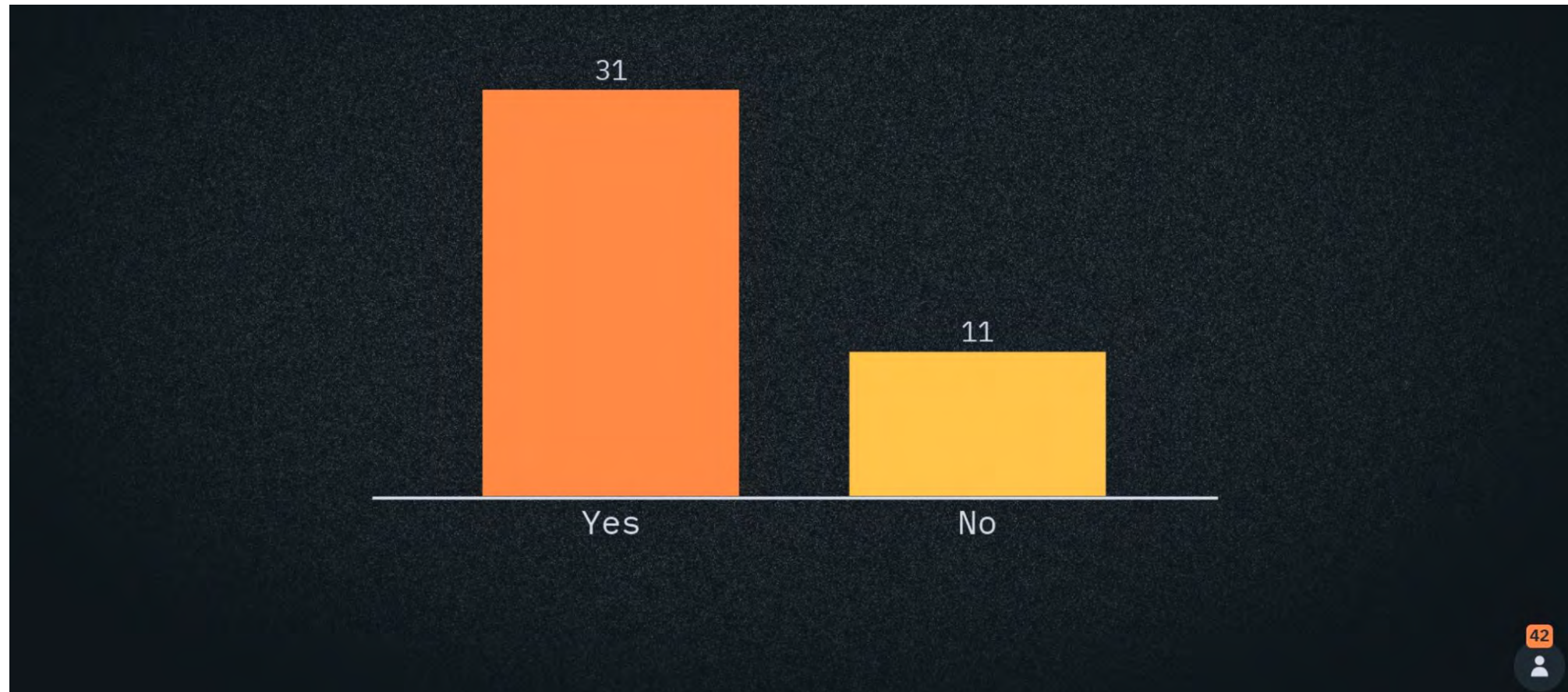


# Applying the approach – observations so far

- One size will not fit all 7 thematic assessments
- Definitely not just about the threatened and /or declining species and habitats – thematic assessments are broader than that -
- Level of detail - may need to vary according to resource – perhaps use NEA PANACEA activities to dive deeper into the effectiveness approach where activities align (e.g. birds) – how to bring the work together?
- How do you cluster? unlikely to be able to look at individual species – how can each theme be clustered in a way that makes sense? Use the MSFD features? Does that work for all groups? (e.g. Fish – Commercial sp (Demersal, pelagic, coastal); rare/ vulnerable species) – how does that work for other thematic areas?

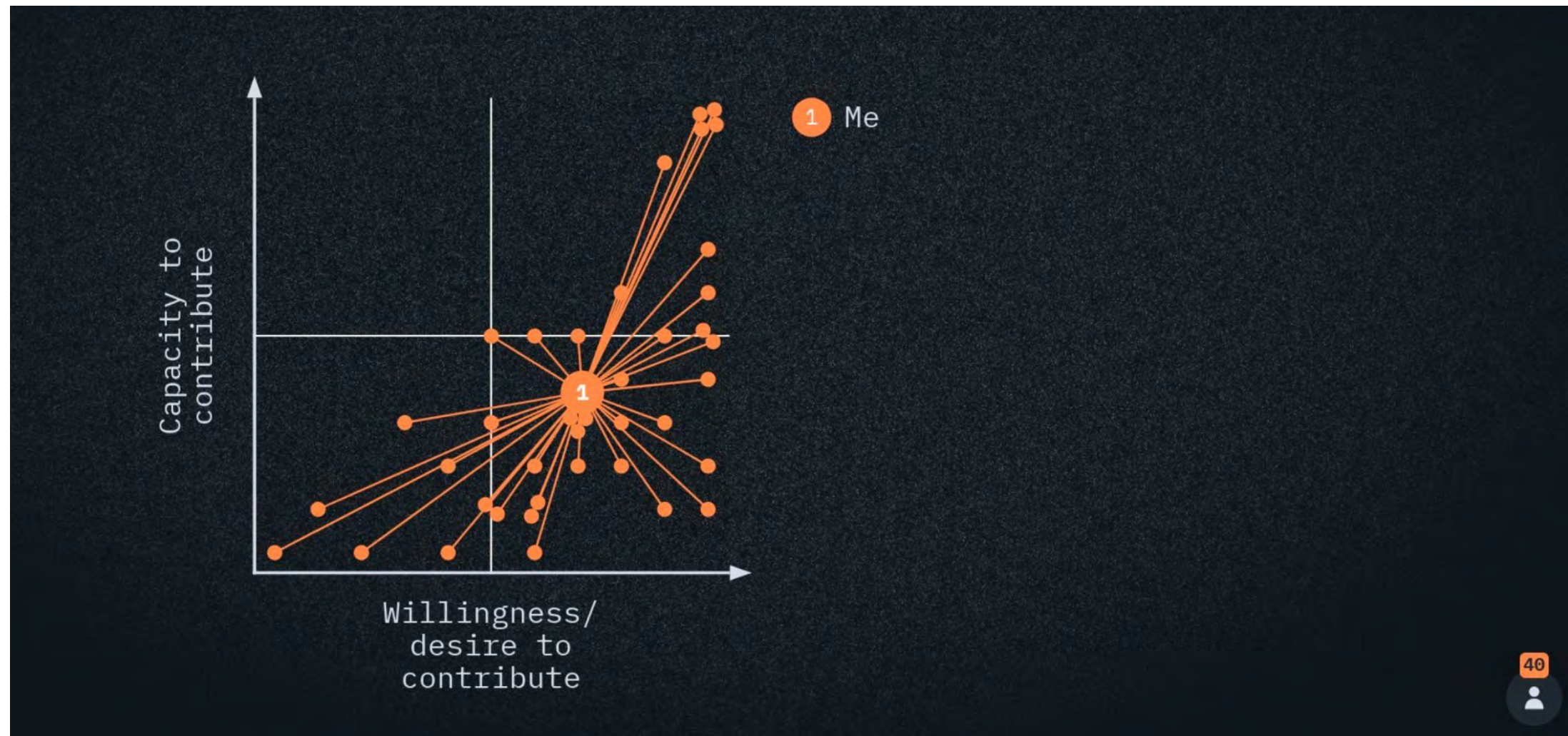
# Mentimeter questions and answers

**Question – are you expecting to contribute to the development of the R-Chapter?** About  $\frac{3}{4}$  of the experts at the session said yes - this will be coordinated through the expert group leads/ sense checkers for the Thematic Assessments



# Mentimeter questions and answers

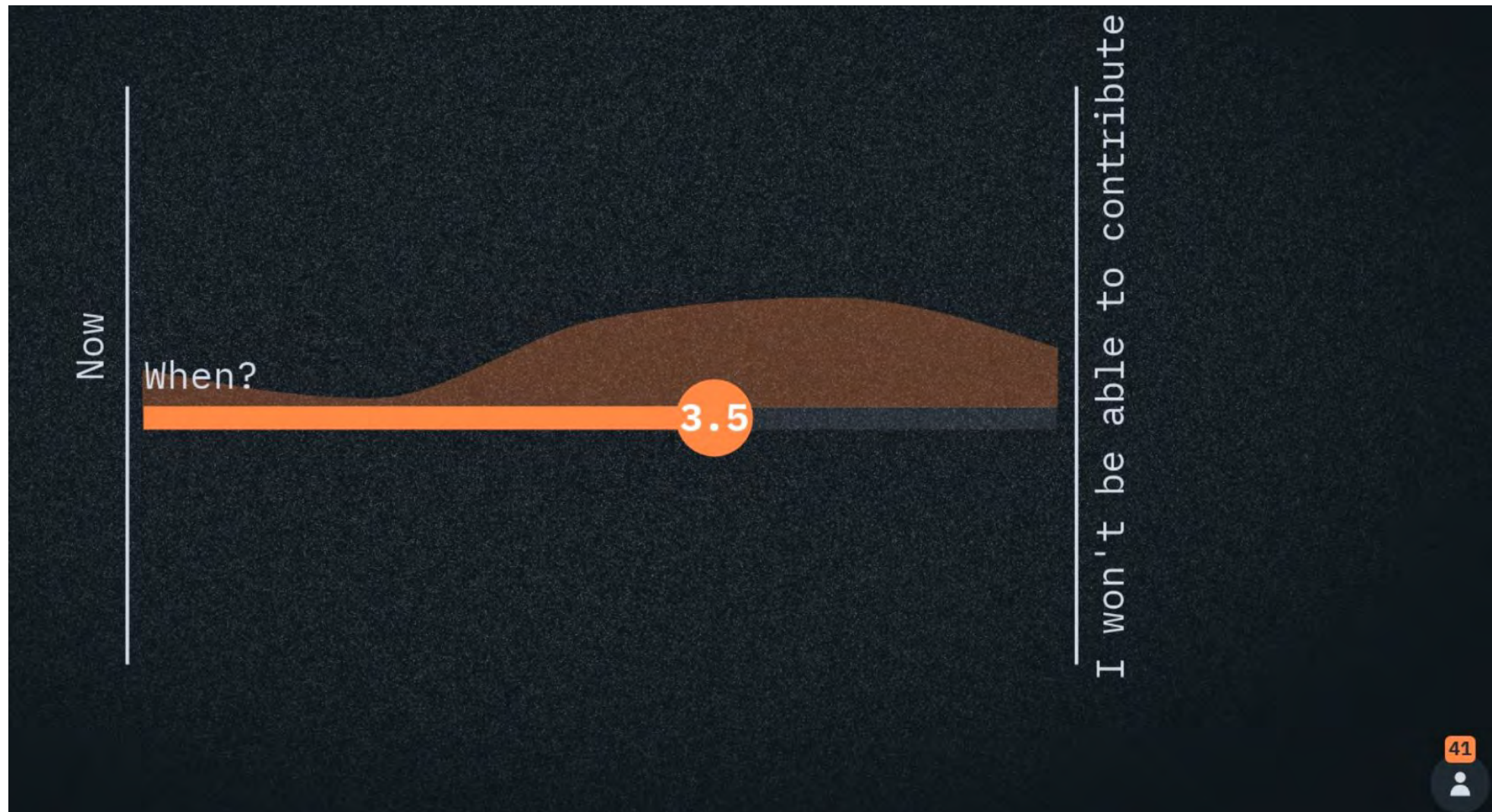
**Question – what is your willingness and capacity to contribute?** The predominant answer is that people are willing but there are challenges with capacity. Some individuals identified they did have capacity and names were provided in the chat.





# Mentimeter questions and answers

**Question** – When will you have capacity to contribute? The options were now, after COBAM, after Christmas and later in the New Year: the consensus was that certainly there would not be much capacity to engage until the New Year, once the indicator assessments had been developed

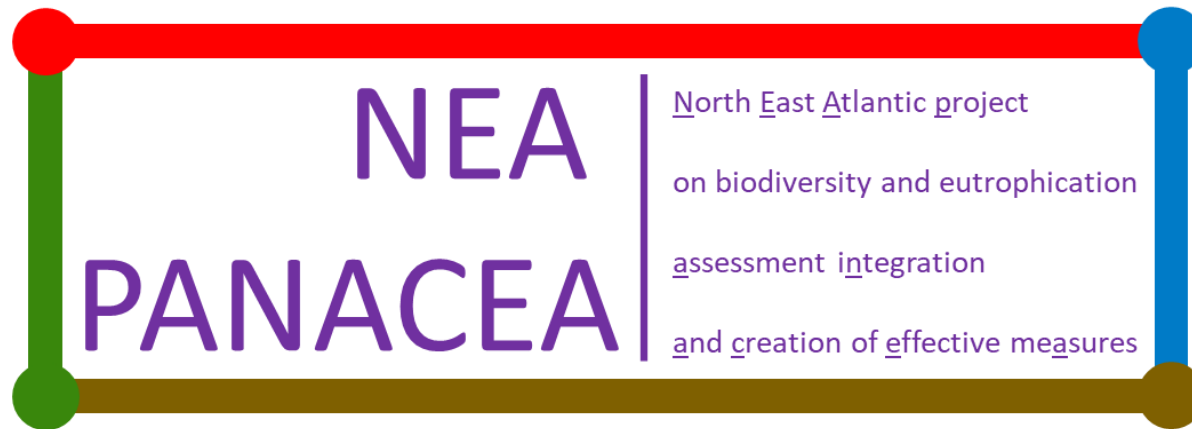


# Mentimeter questions and answers

The final question asked experts to provide examples of management measures that may be interesting to look into as case studies. The following were provided:

- Vessel speed restrictions for right whales
- Noise mitigation piling in relation to marine mammals
- Noise regulation at windfarm construction sites
- Southern right whale found to move northwards. Reduction in shipping traffic reduced mortality in the NW Atlantic Ocean
- reduction of nutrient load in the southern North Sea resulting in changes in phytoplankton balance of organisms, towards 1960s conditions
- management of HABs
- web alert system using satellite data for HABs
- Regulation and reduction of nitrate and phosphate loads on phytoplankton biomass
- Nutrient management in the EU is so good that eutrophication is only a problem in some coastal areas
- thresholds for the MSFD
- POSH Recs that are more widely applicable than the species/ habitats for which they were designed
- EU wide trawl bans in Macaronesia
- Note to link to NEA Panacea Benthic habitat task on measures (especially MPAs) starting April 2022
- some aspects of the CFP
- Measures in teh CFP are not (sufficiently) linked to OSPAR/MSFD - short term political decisions
- Fisheries managagement as examples
- UK MPAs for large skates
- Restoration of eel grass
- Birds: fishing restrictions, bycatch mitigation, eradicate NIS, biosecurity
- Ballast water management convention (NIS) - some success. Eradication efforts for established NIS - usually costly and low success.

# Activity 2 contribution



AquaEcology, University of Hamburg, LKN SH

Silke Eilers, Thomas Raabe, Birgit Heyden, Hermann Lehnhart und Ulrike Schückel



# Overview

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- 2.1 Model tool LiACAT linking eutrophication and climate change scenarios to biodiversity and food web indicators
- 2.2 Operationalisation and assessment of OSPAR food web indicator FW9: Ecological Network Analysis
- 2.3 Identification of ecologically-relevant scales and areas for assessment of pelagic and benthic habitats
- 2.4 Towards coherent threshold value setting methods and Activity 2 synthesis report

# Conceptual setup in task 2

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- Concerning the impact of eutrophication and climate change  
Task 2 has a conceptual approach to quantify the impacts of these two drivers on ecosystem components such as pelagic habitats, benthos, and birds

# Conceptual approach for eutrophication

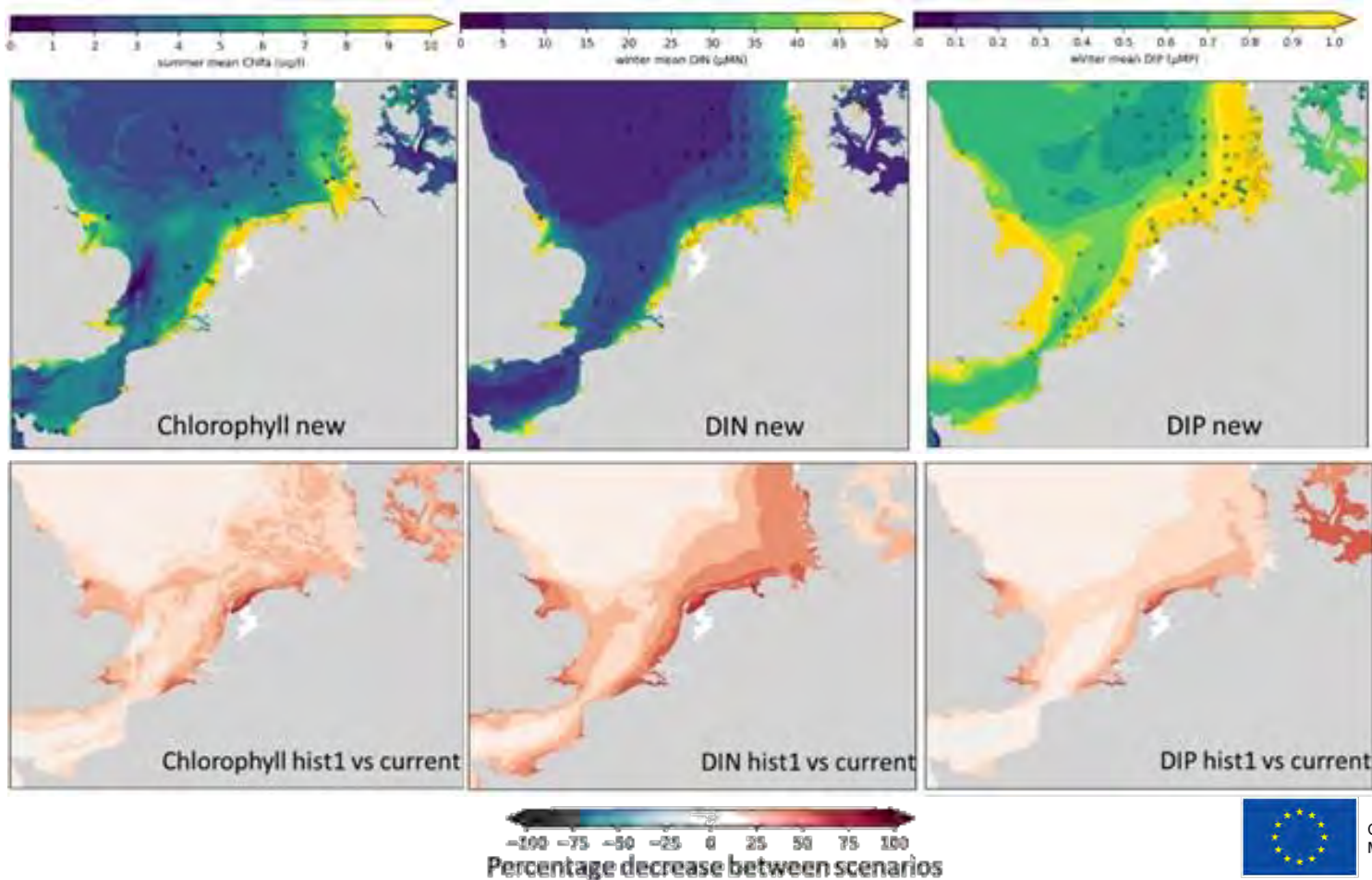
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- The OSPAR group on eutrophication provides coherent threshold values for newly defined COMP4 assessment areas for key eutrophication parameters
- Based on the definition of GES for eutrophication, activity 2 will quantify the impact on selected ecosystem components of relevance for the other activities

# Example Deltares output

## Current state vs. pre-eutrophic scenario



# Conceptual approach for climate change

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- The publication on regional model applications for climate change scenarios only provide inconsistent, partly contradicting, conclusions
  - There is not simply THE „one scenario“
  - We will define a range of scenario definition based on literature research
  - We will provide a bandwidth of possible related impacts for selected ecosystem components



# Conceptual approach for climate change



## Example: Literature study on the impact on bottom oxygen in the North Sea

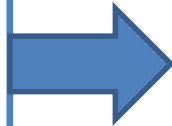
Study	Storyline / Findings	Consequences on Oxygen	Impact
Lowe et al., 2009 Meire et al., 2013	Earlier onset and increased intensity of stratification	Lower ventilation	↓
Weston et al., 2008	General increase in water temperature	Reduce solubility of oxygen increased bacterial metabolism	↓
Gröger et al., 2013	Reduced winter nutrient import by Atlantic	Reduced NetPP by 30 % followed by reduced organic matter export	↑
Mathis and Pohlmann 2014	Higher increase in winter temperature vs. summer	Decrease in stratification/ ventilation Reduced solubility/increased metabol.	↕

# Conceptual setup in NEA PANACEA

**IN:** Climate change and eutrophication estimates

## DELTARES model

oxygen concentration,  
temperature,  
shear stress  
other physical parameters  
chlorophyll-a  
primary production,  
nutrient cycles  
biomass



## LiACAT (Literature based Analysis and Cumulative Assessment Tool)

Analyses and visualization of literature data and assessment results

### Automated Cumulative Impact Model (ACIM)

Modelling **interactions and links**  
Impacts on habitats

### Cumulative Dynamic Energy Budget Model

Modelling cumulative effects on **selected species**

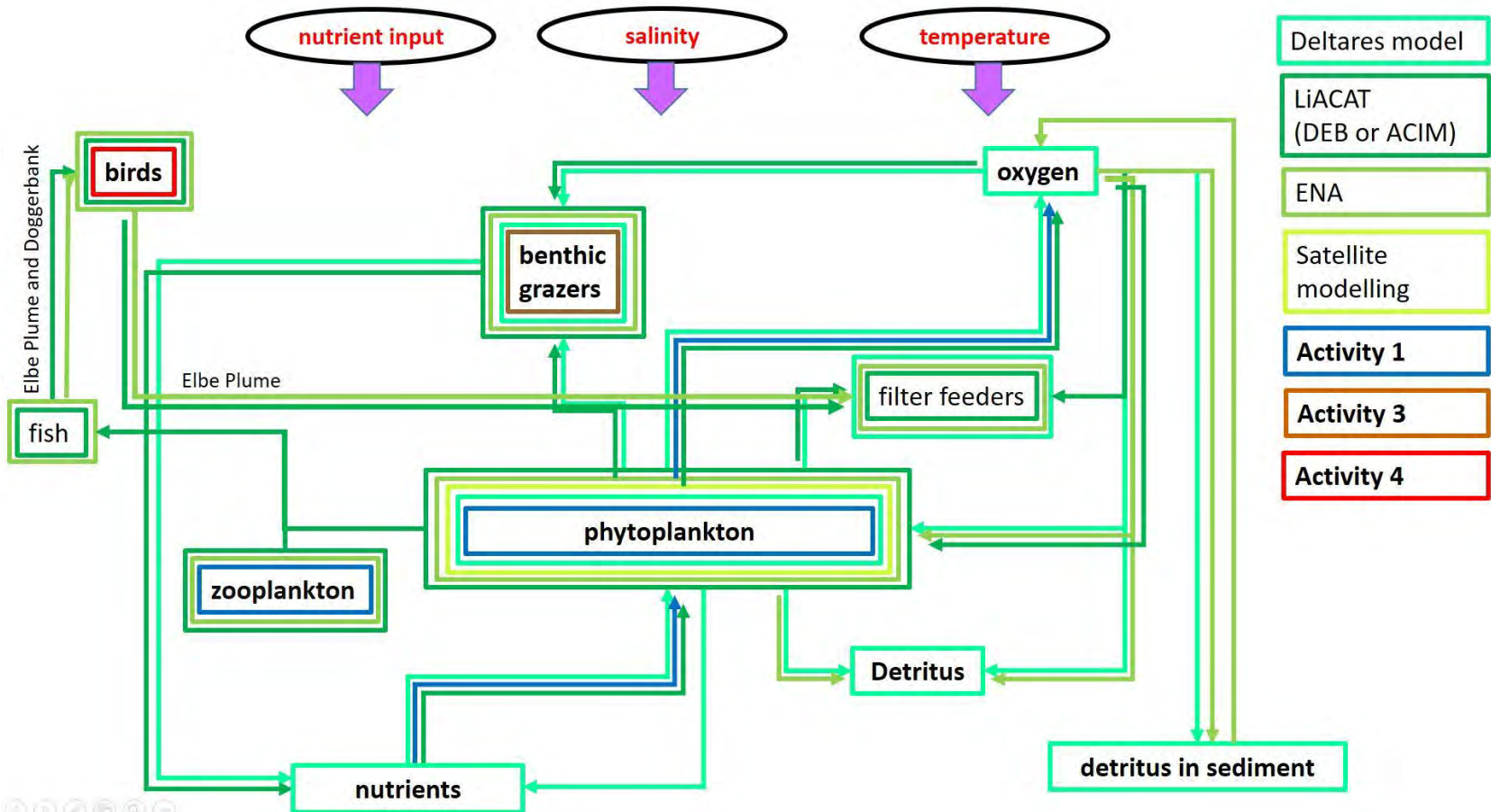


**OUT:** Projection of possible range of related impacts

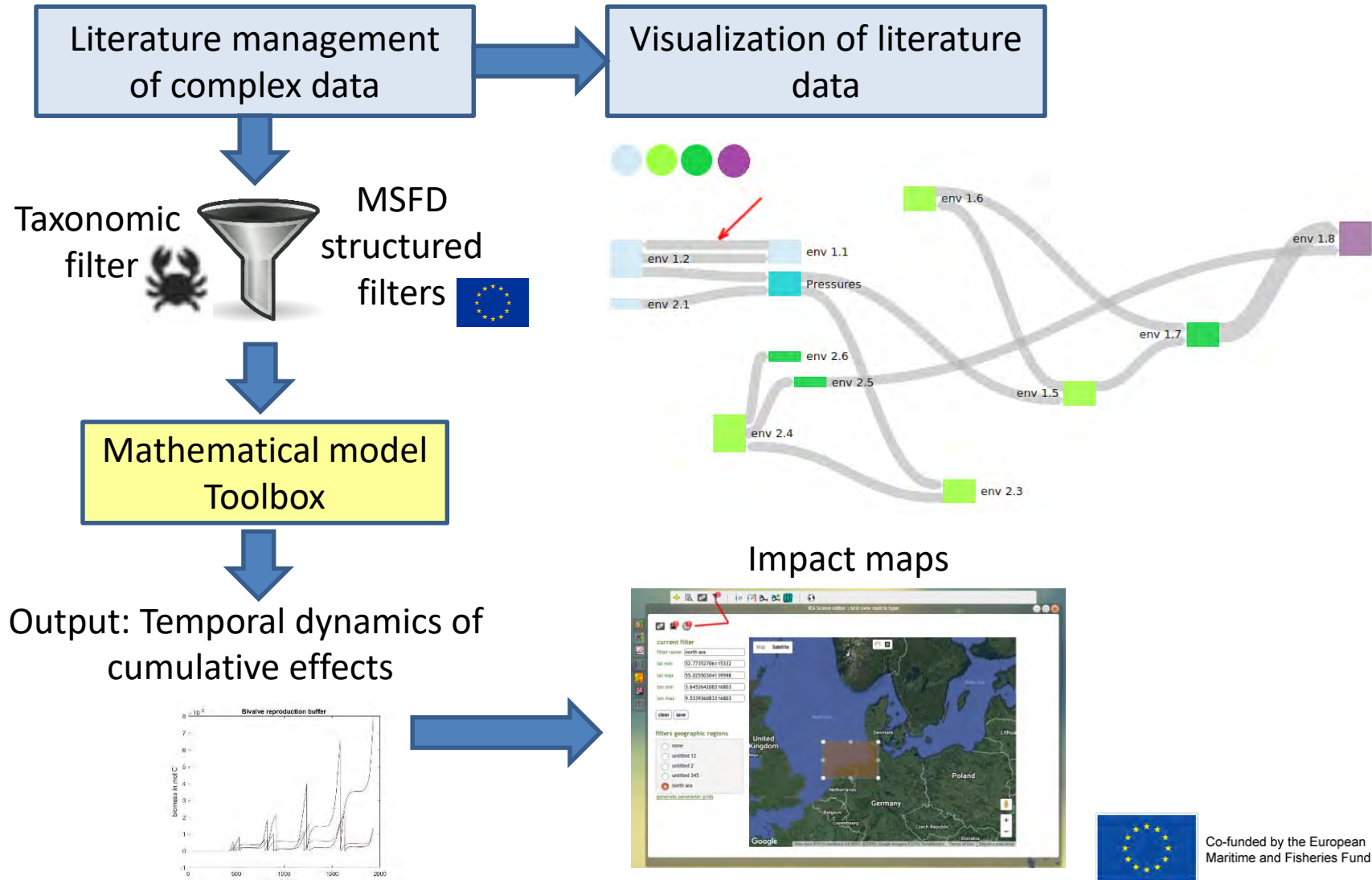
**Ecological Network Analysis**  
Modelling the food web structure and functioning

# Conceptual setup in NEA PANACEA

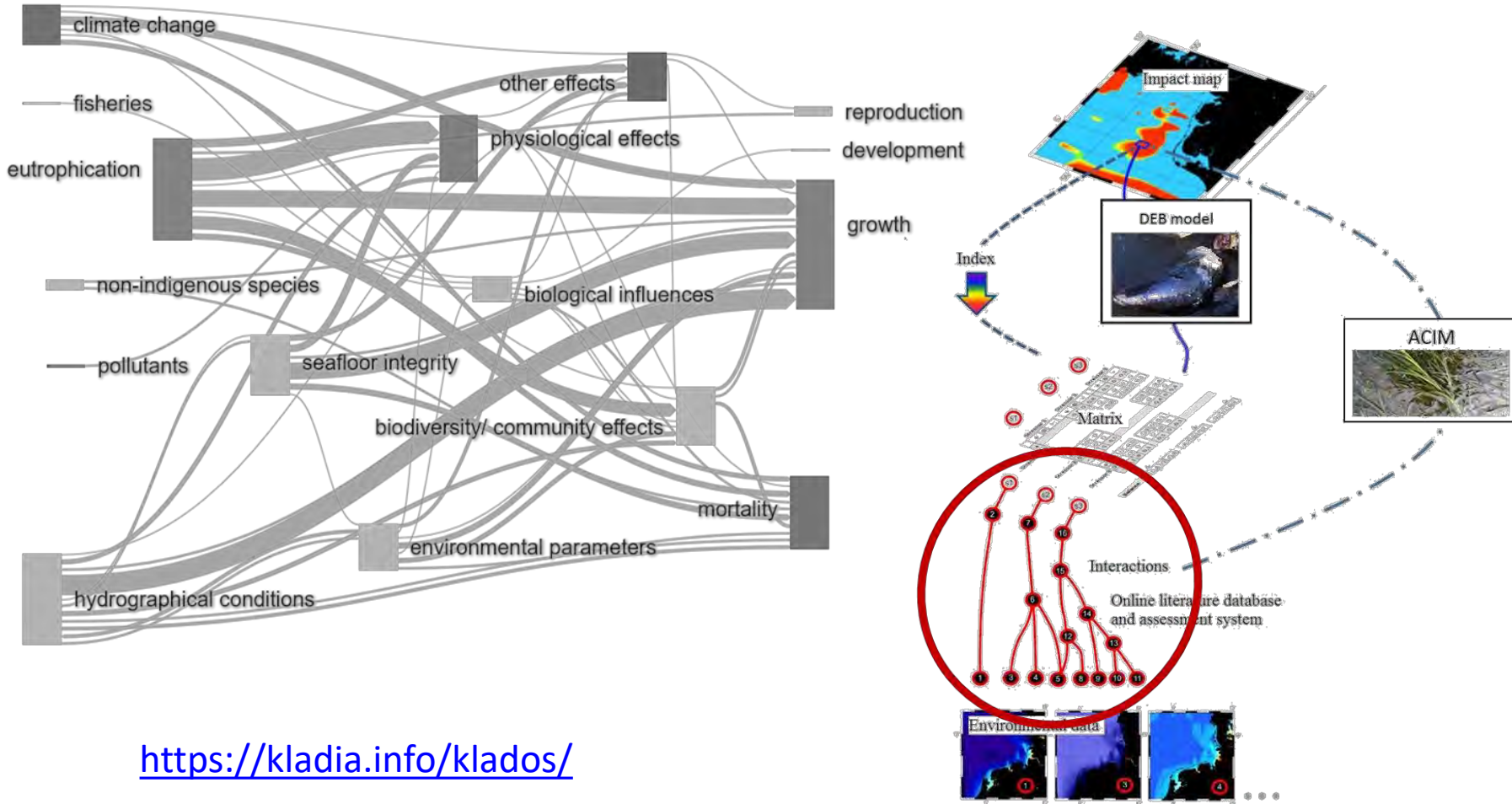
Eutrophication and climate change scenarios



# LiACAT - Overview



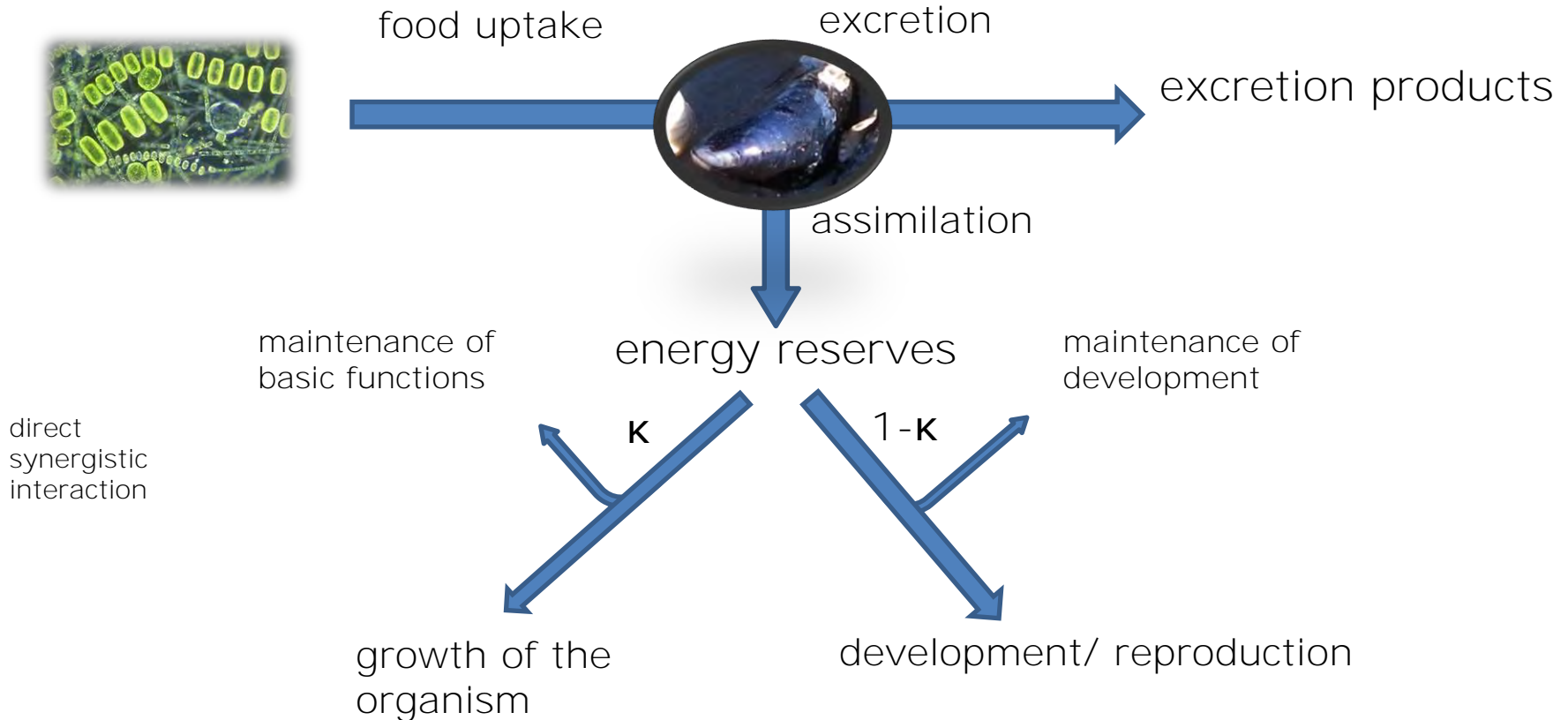
# LiACAT



<https://kladia.info/klados/>

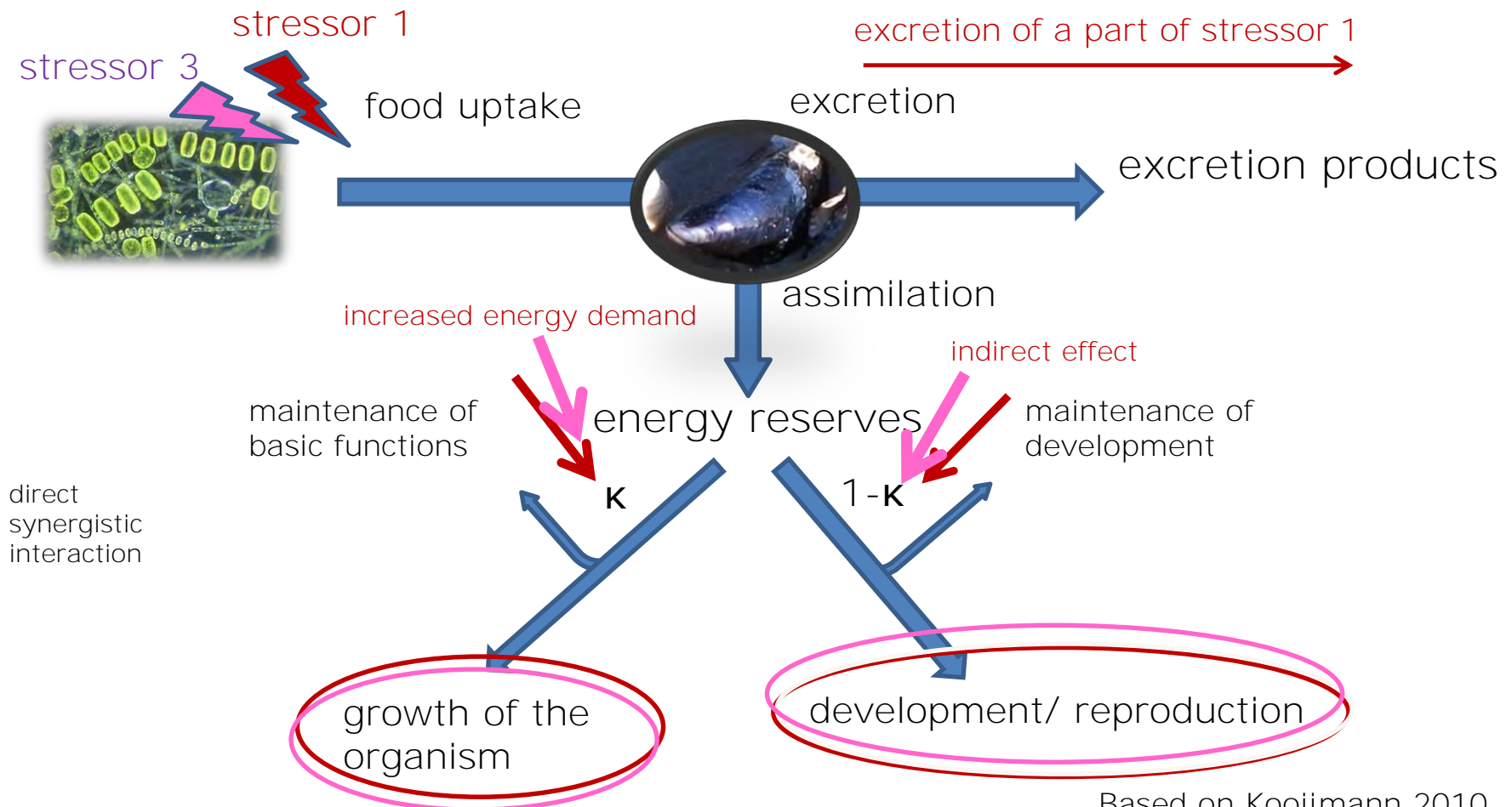
# Mathematical models

## Dynamic Energy Budget Models – modified to model cumulative effects



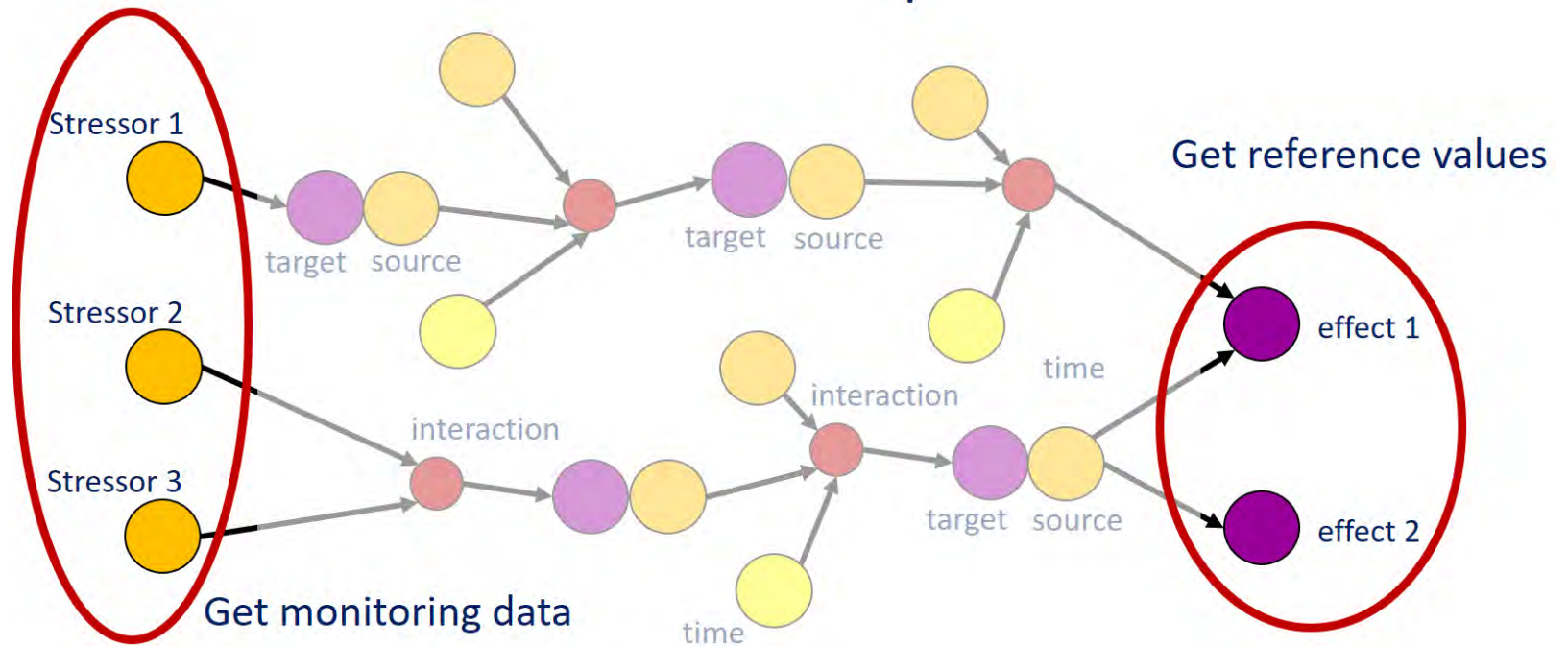
# Mathematical models

## Dynamic Energy Budget Models – modified to model cumulative effects



# Mathematical models

## Automated Cumulative Impact Model (ACIM)

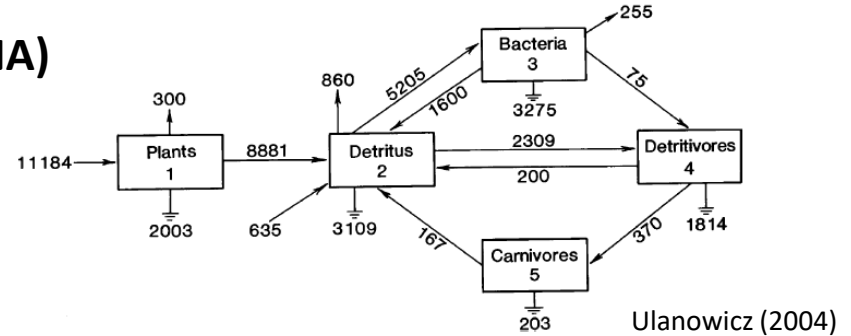




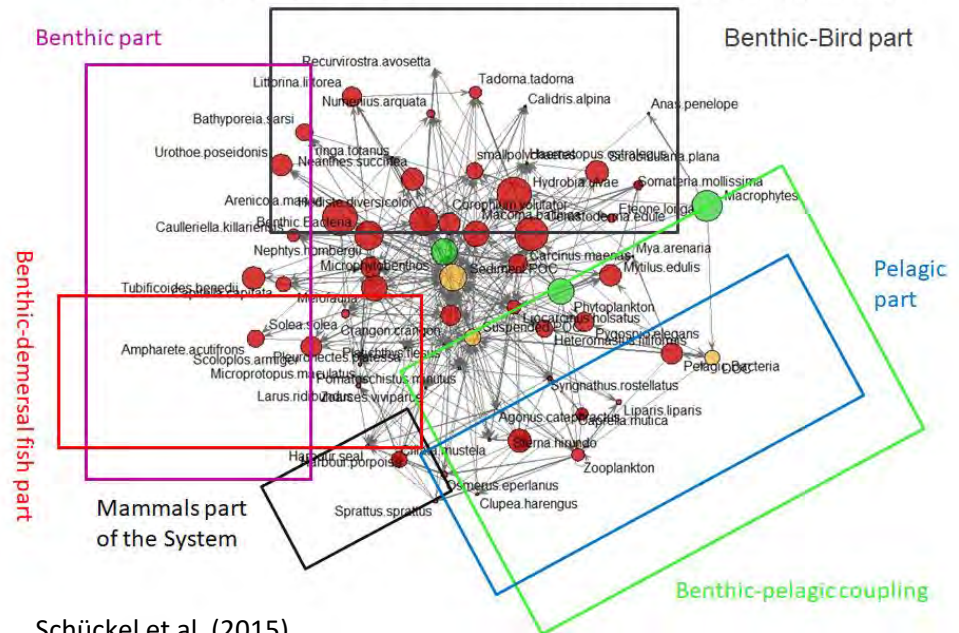
# Mathematical models: ENA

## Ecological Network Analysis Model (ENA)

- Holistic approach, analyzing all direct and indirect flows and interactions among compartments within the food web
- Link to OSPAR food web and biodiversity indicators

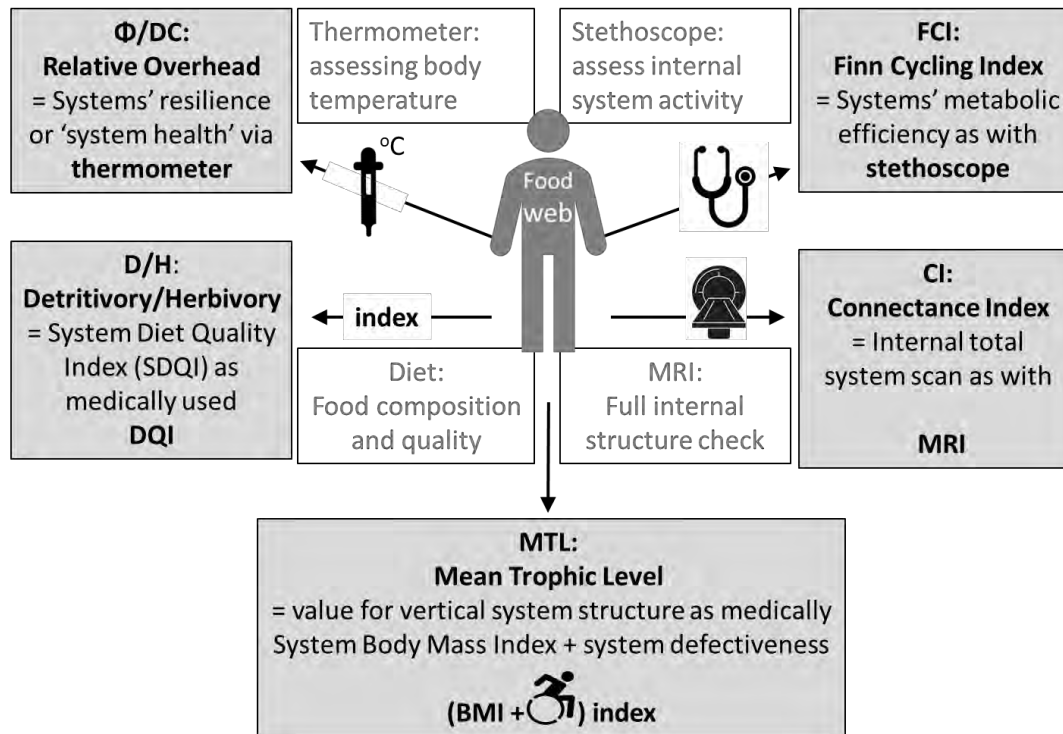


## Food web (example Jade Bay, 62 compartments)



# Output ENA

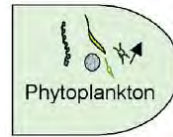
- ENA describes the trophic structure and functioning of the food web
- Assessment of food webs by using ENA indices



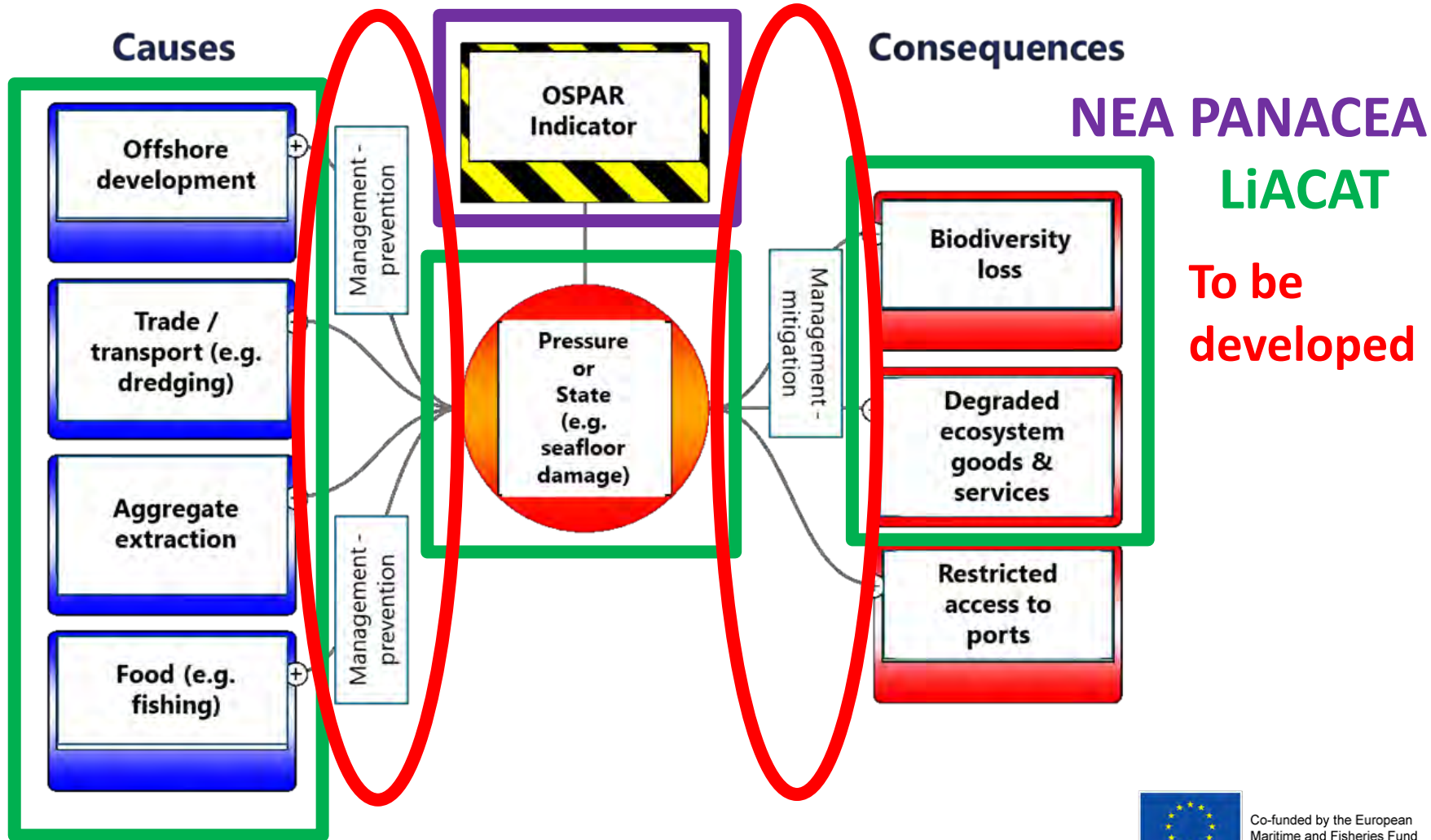
*Comparison between ENA indices and human medical world: medical „check-ups“ (Indicators) indicates whether a system/food web operates well and is most likely free of disturbances*

# Data basis ENA model

- community composition
- abundance & biomass (mg C m<sup>2</sup>) of compartments  
[monitoring data, OSPAR data calls, literature]
- Population energetics (Consumption, Respiration, Egestion, Production)  
[Ratios (P/B etc. literature, projects, DEB models)]
- diet composition (diet matrix): “Who eats whom ? And at what rate ?”  
[stable Isotope, stomach contents, literature]



# LiACAT and the Bow-Tie approach



# Link to OSPAR indicators

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## General link

- Model results for predicted effects of eutrophication and climate change on selected species/ species groups/ lifeforms
- Output can be used to calculate OSPAR indicators for these scenarios
- Unit: percent change due to given scenarios for different exposure times
- AddOn for QSR report: giving an outlook on upcoming threats – based on sound quantitative model results linked to the OSPAR indicators

# Link to activity 1 – Pelagic habitats

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- Phytoplankton is a central element in the modelling framework of activity 2
- Strong link to eutrophication due to related algal blooms etc.

## Relevant OSPAR indicators

- Changes in phytoplankton and zooplankton communities (PH1/ FW5)
  - Scenario-outputs for selected lifeforms
- Changes in phytoplankton biomass and zooplankton abundance (PH2)
  - Scenario-outputs for phytoplankton biomass

# Link to activity 3 – Benthic habitats



- (Cumulative) Dynamic Energy Budget Models for selected benthic species already prepared
- LiACAT is particularly designed to analyse multiple stressor effects

## Relevant OSPAR indicators

- Extent of physical damage to predominant special habitats (BH3)
  - Pressure and impact maps for eutrophication and climate for seafloor → extended view on cumulative impacts
- Condition of benthic habitat-defining communities (BH2)
  - Species sensitivities to eutrophication and climate change of habitat-forming species

# Link to activity 4 – Birds



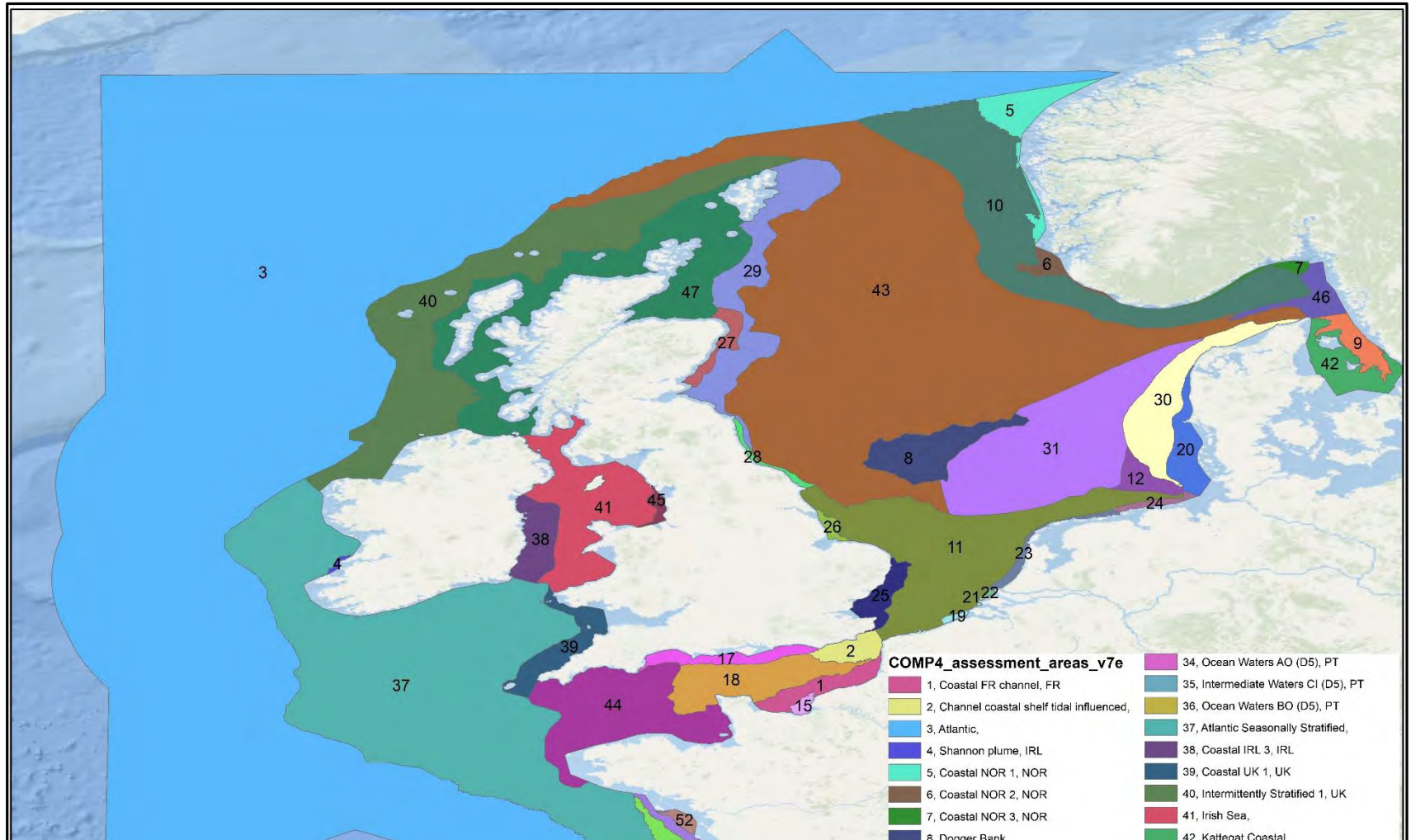
- Link to filter feeders and fish important
- Indirect effects of eutrophication and climate change can be assessed with the models
- Water depth and Chl-a could be important for birds
- Models analyse energetic costs of birds due to pressures

## Relevant OSPAR indicators

- Marine bird abundance (B1)
  - Scenario-outputs for selected species
- Marine bird breeding success/ failure
  - Percent reduction due to climate change and eutrophication scenarios for selected species



# Study areas





# Thank you

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We are looking forward  
to a nice World Café  
meeting

# SuperCOBAM workshop report Annex M

## SuperCOBAM 2021

### Pelagic minutes

#### Key messages:

- **D1C6 is inappropriate for pelagic.** It reduces ecosystem complexity so much that ecological meaning is lost. The pelagic habitat does not have consistent boundaries – water bodies move and plankton move within and between the water bodies. Pelagic habitats are 3 dimensions. For these reasons it doesn't make sense to give a percent of 'good' or 'bad' – would that be percentage of surface area? Water column? Finally, we don't support threshold values at this time, so it is impossible to arrive at a meaningful percentage of good or bad.
- **Threshold values.** Right now we feel that TVs probably won't work but we have some ideas to test around Ecological Quality Ratios or p values in trends, etc, that will allow us to interpret observed changes in relation to reference conditions or baselines compared to the current assessment period. Either way, the narrative is key in linking drivers of change to indicator change.
- **Spatial assessment areas.** We are going to use the COMP4 assessment areas (based on subdivisions proposed by the JMP EUNOSAT project) for the upcoming OSPAR eutrophication assessment, but there are 64 in total (distributed in OSPAR Regions II, III and IV) and we would like to simplify due to data availability. However, we have testing to do on working out if we can link the wide pelagic habitats from the MSFD text (e.g., variable salinity, coastal, shelf) to the areas, allowing us to rationalise areas to simplify assessment. We may then be able to compare the indicators and pressures across areas of the same class.
- **Integration between indicators.** Integration to a single number (or GES/notGES) would 1) hide nuance, 2) obscure ecological meaning, and 3) double count certain taxa as all three of our indicators come from the same data. However, our indicators have multiple parts across multiple spatial areas, which can be overwhelming for policy. It's important that we retain the ecological meaning necessary to inform management measures and to interpret change in other indicators (through the food web). We will therefore start from a position of 'what would be useful for policy makers to know?' and test out some ways of displaying and interpreting data to simplify communication of our message.

Key materials for QSR including QSR guidance: <https://www.ospar.org/work-areas/cross-cutting-issues/qsr2023>

Plankton Lifeform Extraction Tool: <https://www.dassh.ac.uk/lifeforms/>

#### Wednesday 20 October:

- We need to think carefully about our narrative – let's try to clarify this, this week
- Need to work on a common understanding of what is required to complete the QSR and to develop a common approach to addressing the problems rather than potentially repeating effort among research groups.

- Spatial integration
  - The thematic assessments should be at the OSPAR regional scale (In the Annex of the [QSR guidance doc](#))
  - Outcome of Expert Group (EG): Figure out what we can deliver
- Data call
  - **Action** – Abigail to ask PH experts if we are expecting any more data, what the barriers are and if we can help facilitate through the Secretariat. Abigail to notify OSPAR PHEG of data call closure on 1 Dec.
- Spatial assessment units
  - How can we quantitatively decide which assessment unit is best, COMP4 areas or gridded?
    - Using COMP4 areas is best aligned with eutrophication
  - Is it possible to assign each COMP4 area to the MSFD water/habitat types? This could help clarify the diversity of pelagic landscapes and link more closely to the wording the Directive.
  - **Action Arnaud (and to liaise with Matt):** we have testing to do on working out if we can link the wide pelagic habitats from the MSFD text to the areas, allowing us to rationalise areas to simplify assessment. We could then compare the indicators and pressures across areas of the same class.
- For PH3 how do we deal with different taxonomical units since not all species are definitively IDed and if you use genus level data the weighting is wrong since some genus have multiple species?
  - Felipe – we use genus but still have the raw data to interrogate. LCBD highlights years of big change. Important Value Index (IVI) interrogate the data for years characterized by big changes and highlights the taxonomic units responsible for those changes.

## Thursday Oct 21

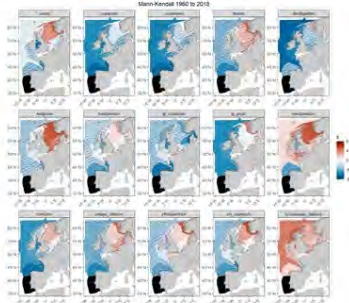
### Indicator integration:

- **Points to consider:**
  - Are all indicator components (e.g. lifeforms) weighted equally?
  - Some taxa are in multiple lifeforms – double counting
  - All three indicators are from the same data
  - What if we normalise our data (as birds do)?
  - Can we use approaches based on conditional or proportional rules (not one-out-all-out) to integrate?
  - At what stage do we integrate?
  - Do we lose all meaningful info if we integrate?
  - How can the integrated info be used to inform management measures?
  - How to go about testing?
- PH1 – let's think of what our final output should be to work out how far we want to go with integration. What do we want to show in reporting? Last time we showed a table of lifeform pair PIs by EHDs. The new COMP4 regions are even more complex, meaning this table would be more complicated. Alternately, we could show maps of change in lifeforms, or change in

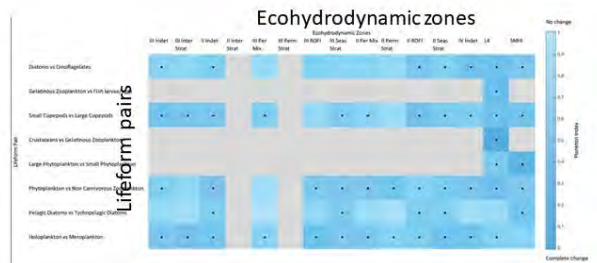
lifeforms linked to drivers of change, which is probably more helpful for policy, but means we are leaving out the PI step. We could cover the PI step in the narrative?

### What do we want to show in assessment?

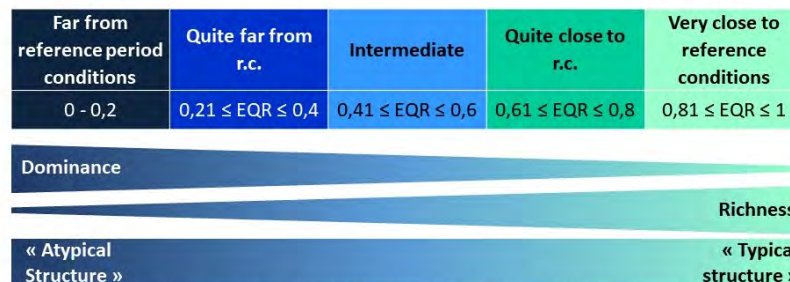
Maps of lifeform change (and/or correlations with SST)



Or



- Skips PI part of our analysis
  - Alignment with other indicators
  - Succinct (one map per lifeform)
  - Intuitive
  - Can show links to drivers of change
  - More useful for management measures
- Can include in SOM
  - Part of our protocol of PI -> change in LF time-series -> triggers further research in LF and component taxa
  - We are unsure of ecological meaning of significant change in PI
  - Consistent with IA2017 (though now we look at assessment period differently)
- PH2 and PH3 – suggests using table to report but can also map according to level of change
    - o Mike: Maps more clear for policy and placing management measures
    - o We will have assumptions either way so need to document those and be clear
  - If we detect sig change in part of an indicator, for each indicator, the more indicators (and parts of indicators) that show change gives more weight to the evidence that plankton are changing. We lose this information if we integrate to a single numbers per indicator or across indicators, and, not all datasets have all lifeforms, or both zoop and phyto, so the simplification hides nuance and can be misleading.
  - Are our indicators picking up the same thing (such as a bloom of a particular spp)? We need to be cautious about double counting through integration. For example if we have a *Karenia* bloom that could show up in all three indicators – that’s not a bad thing, but we need to be clear about what it means. A narrative allows us to interpret via expert judgement so the nuance here can be articulated and the message clarified.
  - French approach for the ecological evaluation of the Pelagic Habitats: Use of the Ecological Quality Ratio (EQR).
    - o The EQR is a metric comparing two periods (ref. vs assess.) ranging between 0 (far from ref. conditions) and 1 (close to ref. conditions).



Ecological Evaluation of French Pelagic Habitats 2018 (Duflos et al., 2018) , inspired from Facca et al. (2014)

Duflos et al., 2018

- o This approach turns continuous data into discrete. It can be mapped, but would it be better to show instead, on a continuous scale, this same information? We need to

test this with PH1/FW5. We could map all indicators using this method for all datasets. This would encourage consistency between pelagic indicators and help the thematic assessment.

- Felipe: For the thematic assessment, we could just very simply show the number of indicators which change in each assessment unit
  - o But what about direction of change – we need to capture this too?
  - o And are all indicators equal, or are data available for all indicators in all places, since not all stations have both phyto and zoop or all lifeforms.
- **Decision:** We should focus on our key messages for each indicator for each report card and use the figures that best support those key messages.
- **Decision:** We must keep our policy audience in mind and focus on what will help them most
- **Action Matt and Arnaud:** to discuss consistent mapping of indicator results and test for discussion

## Friday October 22

### ENA LIACAT

- FW9 integrates across ecosystem components
- Will use an integrated approach, combining bio-phys-chem parameters for some case study areas, linked to Deltares and LiACAT models.
- Data can be annual means or monthly, using time-series data
- How can pelagic indicators be integrated into FW9? We need to identify case study areas with data from benthic, pelagic, etc in the same spot.
- Are we connecting indicators or raw data? Lifeforms and biomass needed, not overall indicator results. We need to work out what the best spatial scale is – does ENA need this by station and/or by spatial area?
- Next step for FW group and Activity 2 of NEA-PANACEA project – overlay all data locations shp to find areas with good biodiv data
- **Action:** Abigail and Matt to help Ulrike and Thomas work this out

### Reporting and assessment:

- We really need to work out what is 'GES' and what is 'not GES' so we can give a clear message to policy makers in the assessments.
- **Action Abigail and Felipe:** to look at indicator templates on QSR Sharepoint and identify things that will stay the same. Anything that we retain already has policy approval so it's advantageous to keep as much as we can.
- **Action Matt:** to arrange next pelagic NEA PANACEA for November
- **Action Abigail:** to populate table in BiTA Sharepoint with potential table of contents for state chapter of thematic assessment and get feedback from group
- **Action Abigail:** to engage with HoD from UK (Andrew Scarsbrook)
- **Action Matt and Arnaud:** We need to present some example results for December COBAM so we need to make good progress on these actions by December. I think the focus should be on mapping indicators so COBAM has an idea of what our draft QSR might look like. We can get some feedback on maps v tables, etc

### Threshold values and reference periods

- Our approach is to detect change and link to drivers of change to interpret meaning of change. It is important to consider different lengths of time periods (depending on the available data), as the observed changes may be lower in shorter time periods.
- The narrative is key in interpreting indicators.
- **Action UoP:** We need to test threshold options to evaluate if they are actually telling meaningful information, e.g. by defining upper and lower thresholds as a corridor of change or different percentages for short or long-term trends or quartiles. NEA PANACEA will test determining importance of change and quantify magnitude of change.
- Our current thinking:
  - o PH1/FW5 – two parts of indicator. Sig change in PI triggers interrogation of lifeforms and component taxa. Narrative interprets change. No TVs.
  - o PH2 – trend-based. Narrative interprets change. No TVs.
  - o PH3 – Indicator identifies important change, which is then investigated for component taxa. Narrative interprets change. No TVs.

### Next steps and ways of working:

- We need to keep in touch with the wider group more regularly. Therefore we should have an interim meeting, even if it's just a Webex. We need to devise a format that is not just Abigail talking.
- **Action UoP:** Work out date of next live in person meeting (May?) and set up two-monthly Zoom check ins for wider EG
- **Next steps:**
  - o Nov 2021: GET YOUR DATA IN!!!!
  - o Dec 1, 2021: Data call closes
  - o Dec 2021: COBAM
  - o Feb 2022: Expect draft of QSR indicator assessments for feedback
  - o March 2022: Draft assessment submitted for policy feedback in
  - o April 2022: BDC
  - o May 2022: COBAM provides feedback on draft QSR
  - o June 2022: UltraCOBAM to focus on thematic assessment
  - o Summer 2022: Expect final QSR assessment for feedback
  - o Sept 2022: Expect thematic assessment draft for feedback
  - o Oct 2022: Final QSR assessment due
  - o Oct 2022: Special BDC
  - o Dec 2022: Thematic assessment due

### Summary of Actions:

- **Abigail** to ask PH experts if we are expecting any more data, what the barriers are and if we can help facilitate through the Secretariat. Abigail to notify OSPAR PHEG of data call closure on 1 Dec.
- **Matt and Arnaud:** to discuss consistent mapping of indicator results and test for discussion in advance of Dec COBAM
- **Matt and Arnaud** – Obtain gridded data output from the Deltares model for examining drivers of change

- **Arnaud** – Process the PML primary production data into a format suitable for assessing as a driver of change
- **Abigail and Matt** to help Ulrike and Thomas work out candidate assessment areas with high resolution and long duration biodiversity data
- **Abigail and Felipe:** to look at indicator templates on QSR Sharepoint and identify things that will stay the same. Anything that we retain already has policy approval so it's advantageous to keep as much as we can.
- **Matt:** to arrange next pelagic NEA PANCEA for November
- **Abigail:** to populate table in BiTA Sharepoint with potential table of contents for state chapter of thematic assessment and get feedback from group
- **Abigail:** to engage with HoD from UK (Andrew Scarsbrook)
- **Matt and Arnaud:** We need to present some example results for December COBAM so we need to make good progress on these actions by December. The focus should be on mapping indicators so COBAM has an idea of what our draft QSR might look like. We can get some feedback on maps v tables, etc
- **UoP:** We need to test threshold options to evaluate if they are actually telling meaningful information, e.g. by defining upper and lower thresholds as a corridor of change or different percentages for short or long-term trends or quartiles.
- **UoP:** Work out date of next live in person meeting (May?) and set up two-monthly Zoom check ins for wider EG

Mixed expert group notes from Wed afternoon (led by Ian)

Group	Scale planning to use for assessment	Can you do a regional scale assessment?	What method of integrating up from small to big scale?
Pelagic	Either gridded or COMP4 areas. Both work, but which is better?	It doesn't make sense to combine our assessment units – we lose ecological meaning. The regions are big and the plankton are patchy.	None.
Benthic	MSFD subregions, COMP4 areas, ICES areas, or IA2017 units. Is it better to align with other ecosystem components or maintain the units used in IA2017? Might have different scales for different indicators. Need to do testing.	Should be possible with BH3.  Don't know for other indicators.	BH3 - % area



Birds	Use IA2017 areas. For some indicators will only do regional assessment.	Will use all indicators.	Not integrating results but just aggregating data at different scales.
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### Key headlines:

- Benthic and birds can assess at regional scale for some indicators. Some indicators can also be used at a smaller scale. Pelagic will use ecologically-appropriate assessment areas.
- What we don't know is at which scales contracting parties want to assess. Some may only want to assess at national scale. This would be useful info for us.
- We feel that it is important to use the assessment scale appropriate for the biodiversity.





## ACTIVITY 4 (MARINE BIRDS) NOTES

Attending (physical + online): Volker Dierschke, Stefano Marra, Matt Parsons (Birds GP Leads) + Ian Mitchell (OSPAR co-convener)

### DAY 1 Assessment Scales and Spatial Integration

#### PRE-DISCUSSION

Birds GP Leads discussed Key points to consider for the EG discussion:

- Assessment scales for Marine Birds are defined (cannot change boundaries)
- Ideally, we want to do Bird Indicators assessments at subdivision level but we need to account of practicalities issues (e.g. time to apply species models for B3 indicator at subdivision level will cause delays with the timeline)
- Consider QSR guidance:
  - choose the assessment scale for your component for indicators
  - Thematic assessment should be done at OSPAR region scale
  - Integrated assessments within the thematic assessment are done at feature level (i.e. species group)
- Consider differences between OSPAR and MSFD assessment scales
- There are going to be gaps, these needs to be flagged
- Outcome: what we think we can deliver
- Can we make a table with what we assess in what area for each indicator, what is practical?

#### EXPERT GROUP MEETING UPDATE

Birds GP Leads joined online discussion with some members of JWGBIRD And discussed options for assessments of the common indicators Marine Bird Abundance (B1) and Marine Bird Productivity (B3). Stefano presented an overview of data obtained from data call

The following points were considered:

- IA17 assessments based on subdivision but QSR23 will use Regions
- Germany will use assessment for IId for MSFD reporting
- B3 needs data from B1, there is a tie between the two indicators
- It is crucial to understand ASAP the assessment scale for B3 given that the indicator involves production of species-specific models which is very time consuming
- The use of smaller subdivision would be more accurate but the downside is that quality of the data would be lower (as there are less sites/datapoints available at subdivision scale)

- It would be useful to do a checklist of breeding & non-breeding data available for each country so we understand the type of national assessments that each country will deliver

OSPAR vs MSFD assessment scales:

- Fredrik Haas (Sweden): Good idea to use the OSPAR assessment for MSFD reporting, but question on geographical scale. Regional scale might not be accurate from Sweden
- Ib Krag Petersen (DK) –there are no particular guidance from the government on the scale to use
- Most CPs would use MSFD data where they can, so for QSR do we really need to align or not.
- Ib Krag Petersen (DK) mentioned that non-breeding data are on the way

### KEY OUTPUTS From EG

- Assessment Units are bird specific and defined (no need to modify boundaries)
- The indicator assessments ideally would be run at subdivision scale but not all indicators can be assessed in all subdivisions because of data gaps
- Indicator integration will only happen at regional level but we will also apply indicators to subdivision level to help interpretation of results, subdivision assessment only based on abundance data because of data availability
- OSPAR vs MSFD scales – main mismatches are for UK that will follow the approach done for OSPARIA17 and use the OSPAR regions also for MSFD reporting

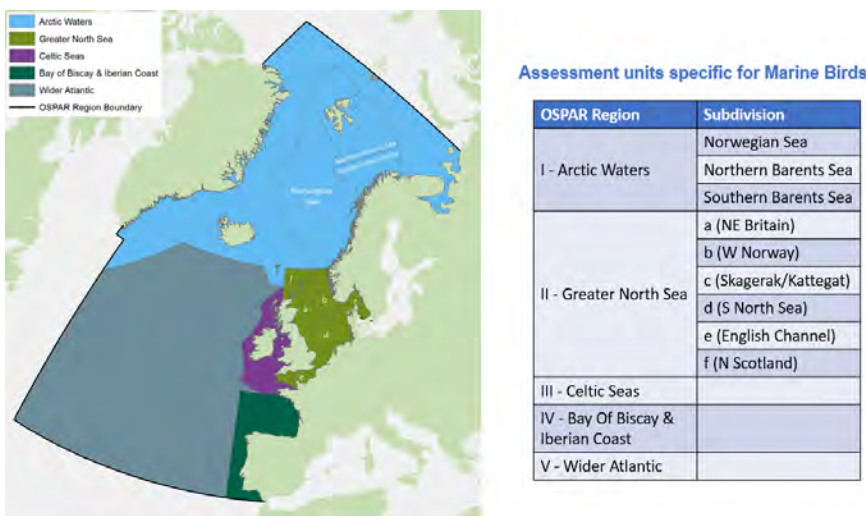


Figure 1. Assessment units specific for Marine Birds

Table 1. Theoretical example showing different data availability for B1 (bird abundance) and B3 (bird productivity) indicators. Regional scale assessment will be based on both indicators B1 and B3, assessment at subdivision scale will be only done for B1 as is the most data rich indicator

	UKIId	BE	NL	DE	DKIId	DKIIc	SEIIc
Breeding success	x	x	x	(x)			
Breeding abundance	x	x	x	x	x	x	x
Breeding status subdivision	IIId = Abundance only					Abundance only	
Breeding status region	II = Abundance & Breeding success						

## MIXED EXPERT GROUP

Key question discussed:

- What scale the group is planning to do for assessment?
- Can you do a regional scale assessment and integration?

PELAGIC: definition of assessment scales is extremely complex for pelagic

BENTHIC: several options for assessment areas, it would be ideal to have the same assessment area for all indicators but also would be good to be consistent with previous assessments. Different scales from different indicators.

BIRD: Indicator integration will only happen at regional level but we will also apply indicators to subdivision level to help interpretation of results, subdivision assessment only based on abundance data because of data availability

Benthic and birds can assess a regional scale (for some indicators) and smaller scales (for others)

## Lena Avellan: OSPAR secretariat information and resources for QSR

[OSPAR Assessment Portal](#) – you can look at the previous assessments. QSR2023 – will look at status but also measures

<https://www.ospar.org/work-areas/cross-cutting-issues/qsr2023> you find all resources including [QSR Guidance document](#) (important to read)

- Annex 3 – assessment unites
- Annex 4 – definitions
- Table 3 pg 15 – spatial scales for thematic assessments and integrated assessments therein

For QSR we want to see summaries at region scale – a result for each species group

## DAY 2 Integration of Indicator Results

### Activity 2 Café

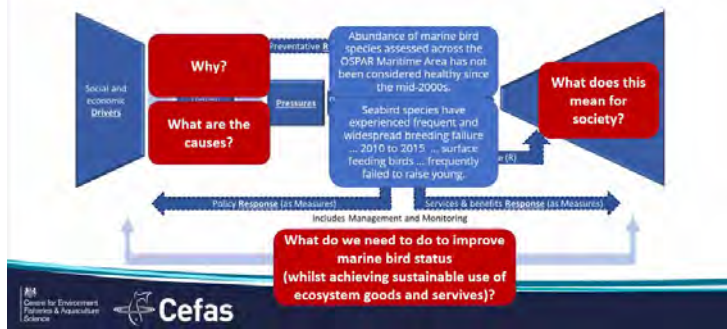
Assessment Scale Group:

- Activity 2 leads are defining new assessment areas using existing layers of chl-a, salinity, depth and stratification. These have been further refined by ECG-EMO to consider WFD areas and river catchment. Can the proposed assessment areas be used by other groups?
  - The Activity 2 areas are smaller than the one used for marine Birds: implications on data availability (i.e. less data available for smaller units) and ecological meaning (birds subdivision were developed considering main oceanographic features and observed differences in seabirds' community structure and population trends). Smaller subdivision might not be adequate for some species that have wider habitat ranges
    - ACTION: Share shapefile with Birds regions and subdivision with Activity 2 leads

### Adrian Judd: ICG-EcoC

DAPSIR: Drivers – Activities - Pressures – State – Impact – Responses > Bow Tie Analysis  
Making associations between each level of the DAPSIR (e.g. D vs A, AvsP etc..)

## DAPSIR QSR Guidance



The analysis for DAPSIR chapter will be mostly qualitative (quantitative when possible)  
 Are we looking at things that are not in the bow-tie analysis

- ACTION for Birds GP Leads: consider whether to create an internal feeder report for the DAPSIR chapter

## PRE-DISCUSSION

### EXPERT GROUP

Birds GP Leads joined online discussion with some members of JWGBIRD And discussed options for integrations of marine birds' indicators  
 Volker presented an overview of method for indicator integration

The following points were considered:

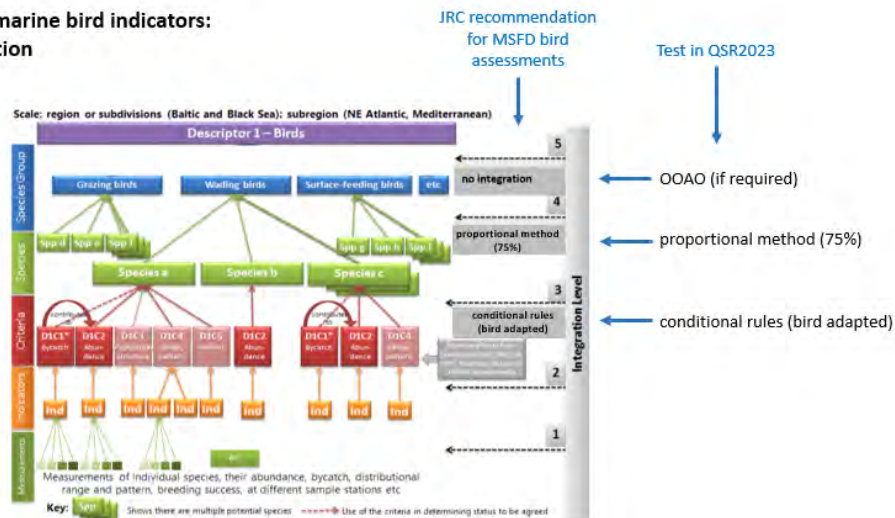
- Marine bird for QSR 2023 and MSFD Article 8 assessments shall use indicators for 5 criteria: D1C1 (bycatch), D1C2 (abundance), D1C3 (demography), D1C4 (distribution), D1C5 (habitat for the species)
- MSFD differentiation between primary and secondary criteria
- D1C5 is it secondary criteria, the indicator is candidate
- Integration is done at multiple levels: from indicators to criteria > from criteria to species > from species to species group > from species group to ecosystem component (not required by MSFD)
- In [2020 JRC produced a report](#) reviewing different methods for aggregation from criteria to species and some recommendations. Methods considered are: One-out-all-out (OOAO), proportional method (75%), average, weighted average, probabilistic methods, conditional rules (ICES Advice)
- Pros and cons of each method was presented by Volker, alongside results from preliminary testing conducted on a selection of species in the German Baltic Sea (mixture of real data and estimates)
- JRC developed conditional rules for integration from criteria to species, considering the importance (expressiveness) of the individual criteria/indicators
- JRC recommendation for integration from species to species group is to apply proportional method (75%) if at least five species of a species group can be assessed and OOAO if not

For the conditional rules for integration from criteria to species, it was suggested to

- define where better data are needed for a criteria > this would help address whether the value of an indicator can be increased in the future
- the order of the criteria in the conditional rules can be modified to reflect importance of each criteria (i.e. Can secondary criteria be weighted differently?)

- According to Com Dec 2017/848, status of bycatch should be contributing to abundance but unclear how

**Integration of marine bird indicators:  
Tree of integration**



**MIXED EXPERT GROUP**

Birds GP Leads joined online discussion with other species EG and explored communalities with marine mammals (Anita Gilles)

- Bycatch: use precautionary approach if there is evidence of bycatch but not enough data to assess mortality
- Integration species to species group: marine mammals have difficulties in assessing the relevant scale as different species within the same group would have wide differences in the relevant assessment unit > suggestion to use the largest spatial scale available for assessing species groups

**KEY OUTPUTS From EG**

Methods for integration of indicators are well developed for Marine Birds. Points that other biodiversity component can consider when developing their methods:

- Integration method should reflect the importance of each indicator descriptor (criteria) i.e should have ecological sense
- Other biodiversity components should look at criteria to develop integration methods
- Birds integration method consider breeding and non-breeding species as separate entities. Other biodiversity components can do something similar, e.g. fish: consider fish stocks as separate species.
- Recognise links between criteria (e.g. link between by-catch and abundance). This can also be done by other species groups interested by-catch?

**DAY 3 Threshold Values**

**Activity 2 Café**

LIACAT-ENA model Group:

Activity 2 leads will get in touch to request time series of bird (we have abundance data that can be converted in biomass – Matt says this is relatively easy to do)

**Threshold value inventory**

bird indicators were assigned to appropriate cells in the matrix of status of development and TV narrative.

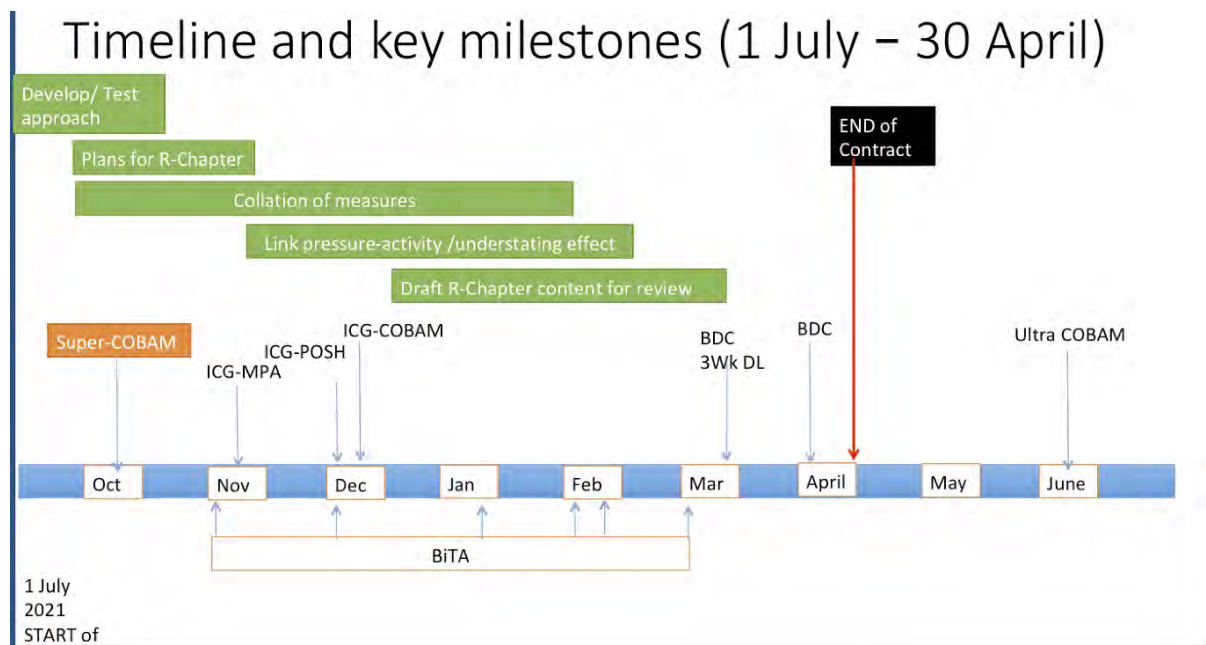
indicator	Baseline/threshold value narrative	Status TV development
B1	Limit reference level	Policy acceptance
B3	Limit reference level	Policy acceptance
B5	Removal and conservation targets	Policy acceptance
B7	Acceptable deviation from historic or pristine state	Not started

## Emily Corcoran: Response/Measures

The Response chapter in the DAPSIR should be 5-6 pages long and will cover what has been done to address activities and pressures by OSPAR and other policy frameworks

The starting point for the draft is the bow-tie and the approach to construct the response chapter was taken from the HELCOM SOM (sufficiency of measures analysis).

Initial drafts of the R chapter is in SharePoint. Emily will need the R chapter to be reviewed by EGs after Christmas



## PRE-DISCUSSION

Birds GP Leads discussed Key points to consider for the EG discussion:

- Standardising language – interpretation of terms in the same way
- What are the main issues for different groups?

## EXPERT GROUP

Birds GP Leads joined online discussion with some members of JWGBIRD

Matt presented an overview of methods and threshold values used by different marine birds indicators: Marine Bird Abundance (B1), Marine Bird Breeding Success (B3), Marine Bird Bycatch (B5), Marine Bird Habitat Quality (B7).

The following points were considered:

- B1 and B3 are common indicators, B5 and B7 are being used for pilot studies
- Discussion around Bycatch Indicator (B5):
  - is bycatch considered deliberate killing? No
  - if you can't come up with level of bycatch use precautionary principle
  - the current target approach used on the method is a further elaboration of what was discussed at the Copenhagen workshop (but it is agreed by CP)
  - JWGBIRD in November to further discuss this indicator

## **KEY OUTPUTS From EG**

Thresholds values for B1 and B3 indicators have already been defined and agreed. Further discussion needed with JWGBIRD to determine thresholds for candidate indicators B5 and B7

Discussion off the sessions (Birds – Activity 2)

Can food web models predict “optimal” numbers of birds, which in turn can be used to define threshold levels and baselines (other than arbitrarily using the beginning of the time series of data as the baseline)?

Assessment scales: Combination of pelagic/benthic/etc indicators with bird indicators scientifically more appropriate if using raw offshore bird data for the respective assessment units rather than combining indicator outcomes (which usually have different assessment scales).



# SuperCOBAM workshop report Annex L

## Minutes of the Benthic outcomes from the SuperCOBAM workshop

Wednesday the 20<sup>th</sup> to Friday the-22<sup>nd</sup> of October 2021

[LEF Future Centre, Griffioenlaan 2](#), Utrecht (Netherlands) + online meeting

**N.B.:** These minutes complement the minutes of the 19/10/2021 OBHEG meeting (Annex 1), and should be completed by the full Super-COBAM report.

### Attending benthic experts

**Physically:** Ana García-Alegre (ES), José Manuel González (ES), Laurent Guérin (FR), Anna Lizińska (FR), Stefano Marra (UK), Liam Matear (UK), Petra Schmitt (DE), Cristina Vina-Herbon (UK), Sander Wijnhoven (NL)

**Online:** Ricardo Araújo (PT), Mats Blomquist (SE), Aurélien Boye (FR), Maria Ana Almeida Colaço (PT), Paul Coleman (IE), Grete Dinesen (DK), Stephen Duncombe-Smith (UK), Marie-Louise Krawack (DK), Filipe Henriques (PT), Axel Kreutle (DE), Yvonne Leahy (IE), Jorge Lobo-Arteaga (PT), Giacomo Montereale-Gavazzi (BE), Karl Norling (SE, ICG-CC), Alexandre Robert (FR), Hans Ruiter (NL, ICG-EUT), Gert Van-Hoey (BE), Kirsty Woodcock (UK).

### Key messages on benthic outcomes from this workshop

- The stocktaking of data that is available was progressed and will enable when completed to clearly define area which will be really assessed (and start all indicators draft assessment!).
- Spatial assessment units: First proposal developed, shapefile to be created in next step. Aiming to align for all indicators which will make it easier to present information at the next level, notably the Benthic habitats' thematic assessment and explore links with other components, notably pelagic habitats' thematic assessment.
- Integration of indicators: The conceptual method exists to combine indicators exists (Elliot et al, 2018), and some methodological gaps were also progressed, but in terms of MSFD criteria integration, there is still a conclusion that the Broad habitat type is the last relevant integrated reporting unit, and that there is currently no sense to integrate the different information and results between different pressure type in a single value (D6C5). A dashboard of results of all other criteria contributing to D6C5 would be more relevant, both ecologically, scientifically and for management issues.
- Thresholds Values: this is a very challenging task, further work is foreseen on next steps, but it is not foreseen that Threshold Values will be fully developed by QSR2023. Different regions are at different level of development, both science and policy based questions need to be addressed. BH2a is the only benthic indicator with n agreed threshold. A 'Narrative' for a BH3 threshold has been described, and will be discussed in the next OSPAR relevant meetings.
- We will need to clearly indicate what will be each NEA PANACEA product and what could be a QSR input, because an agreement have to be reached at several OSPAR committees levels and this can be challenging according to QSR2023 timeline. Nevertheless, the Nea Panacea timeline is currently fitted to submit all products end 2022, which would enable submission of all products to end 2022 COBAM and BDC meetings, and agreement in Spring 2023 for QSR production.
- There is substantial progress expected in the benthic habitat OSPAR QSR outputs compared to previous (2017) assessment outputs, recognizing that some state-pressure relationships are still not yet developed.

### **Main conclusions and actions on benthic outcomes from this workshop**

**ACTION:** BH3 and BH4 leads to clarify with Danish and Swedish experts (Mats and Norbert) if data available (habitats and pressure) in the Kattegat and Skagerrak areas will enable respective assessments.

**ACTION:** Laurent to contact urgently French responsible to provides the dates to which the French data could be made available for OSPAR.

**ACTION:** OBHEG to propose and discuss during the next meetings, specific lists of species, related to sensitivities at defined pressure, or functional groups. UK and Activity 2 teams to interact to incorporate relevant sensitivity species lists, notably with Spanish, French and Portuguese teams for Region IV, and in general with experts from any relevant biogeographical (sub)region to be assessed by BH3.

**ACTION:** Methods to be clearly described in each indicator CEMP document, and clearly highlighting for BH3 what is new compared to previously agreed BH3 CEMP guideline.

**ACTION:** Further progress and application of these methods to be reported and discussed in the OBHEG future meetings, also with Nea Panacea tasks 3.2 (BH1), 3.4 and 3.5 (BH3 development and scenario) and 3.7 (thematic assessment).

**ACTION:** Links between indicators, integrated methods and MSFD GES criteria to be clarified by OBHEG. Petra Schmitt (DE) to send the TG Seabed doc to all group + Silke: *SEABED\_6-2021-03rev2\_GDArt8-D6\_short-draft\_20210628.doc*

**ACTION:** Indicator leads (and teams) to consider biogeographical variation (and related subdivision) of species communities and sensitivities lists of habitat types in each OSPAR (sub)Region when testing or assessing indicators, notably for BH1 and BH2 indicators, and sensitivity data underpinning BH3 and BH4 assessments. A coherence is needed to enable integration between indicators.

**ACTION:** Benthic, NIS and any other interested expert group lead to plan mixed discussion and potential resources for progressing conceptual integrated methods, based on current respective indicators and assessment methods, to assess the effect of NIS on biodiversity component (as part of biodiversity AND a biological pressure).

**ACTION:** to all experts to review Emily's Excel file and identify gaps in the measures linked to them biodiversity component.

**ACTION:** Laurent and Cristina (OBHEG co-chairs) to progress (numerically) this Benthic habitats' thematic assessment draft and share with OBHEG (and Lena) to progress discussion and testing contents at next OBHEG and COBAM meetings.

## **AGENDA ITEMS AND MINUTES**

### **SuperCOBAM workshop main goals**

SuperCOBAM is intended to support the delivery of the ICG-COBAM biodiversity assessments for the QSR2023 (this means all expert groups and the assessments they produce, not just those supported by NEA PANACEA). It is an opportunity for expert groups to convene and have some dedicated discussion or writing sessions (depending on the need of the expert group). At the same time, SuperCOBAM is an opportunity to exchange information with the other expert groups, align procedures and approaches where needed and discuss topics of a cross-cutting nature. Part of NEA PANACEA is executed by experts from the ICG's on eutrophication and eutrophication modelling (ICG-EUT, ICG-EMO), who will also be present to explore and discuss matters of a cross-cutting nature.

### **Day 1 – Wednesday the 20<sup>th</sup> of October 2021**

#### **Offline sessions**

##### **1. Pre-discussion: SuperCOBAM**

This session aimed to discuss and agree about main aims and expected outcomes of this workshop, which are summarized here and in Figure 1:

- To inform each other about ongoing works, stumbling blocks, and to progress common understanding and language.
- To progress methods, also by learning from other groups (methods and spatiotemporal overlaps), keeping OSPAR and MSFD requirements and compatibilities in mind.
- Develop the narratives (story telling) of each thematic assessment. To develop concepts but prioritize what can really be done in the project timeline.
- To communicate results and produce key messages for OSPAR (ICG-COBAM, BiTA, BDC, COG, ICG-MSFD, ICG-QSR, etc), and European and national working groups (Science & Policy), about progress and anticipated products and remaining gaps towards a holistic assessment of the North East Atlantic Ecosystems.

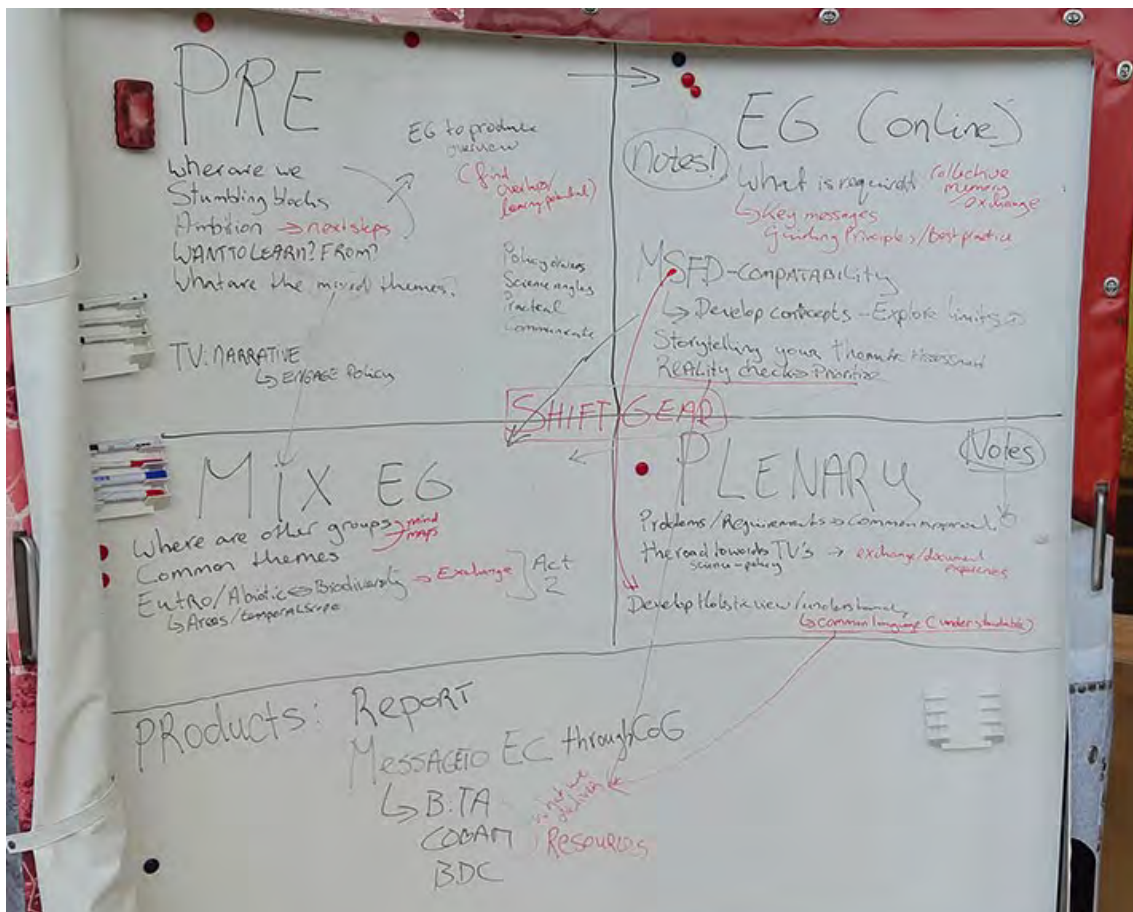


Figure 1: Live notes resulting of the pre-SuperCOBAM brains warm-up session

## 2. Pre-discussion: Assessment Scales and Spatial Integration

The Chair outlined the work plan. For each indicator, it is needed to present and discuss the features connected with state and pressure, as well as the theoretical (concept) and practical (data available) assessment area (region, subregion, part of the subregion, etc). For our works, we need to consider both OSPAR and MSFD marine regions.

### Online sessions

## 3. Expert Group Meeting: update

**Benthic group** - connection problems solved after several minutes, tour de table of all participants.

The OSPAR Benthic Habitat Expert Group (OBHEG) had the opportunity to meet the previous day (See OBHEG 19/10/2021 minutes and presentations) and discuss the progress made for each indicator, notably on the data currently available and the work plans and progress made. Some work was done also to prepare SuperCOBAM sessions. It was decided notably to present and discuss the BH4 (by Petra), a TG Seabed document on assessment scales (by Sander) and the MarESA method (by Liam). About data, an action was already decided the previous day for indicator leads to state in a table on the data currently available (per country and data type), following OSPAR data calls. This will enable to know the real spatial coverage of the future assessment for each indicator.

During discussions in this session, some actions were decided in link with the data:

**ACTION:** BH3 and BH4 leads to clarify with Danish and Swedish experts (Mats and Norbert) if data available (habitats and pressure) in the Kattegat and Skagerrak areas will enable respective assessments.

**ACTION:** Laurent to contact urgently French responsible to provides the dates to which the French data could be made available for OSPAR.

Some intersessional works was also done by some indicator leads to produce a table describing each indicator theoretical assessment scale and data requirement (Annex 2).

#### **4. Lena Avellan: OSPAR secretariat information and resources for the QSR**

- Presentation by Lena Avellan (OSPAR Secretariat): [OSPAR QSR2023 guidance document](#)

This document notably includes a table describing current assessment scales and areas for biodiversity components. One challenge is to discuss/agree on common or nested (ecological) subdivisions of Regions for all integrated assessments. Works should also consider, and be in coherence with, those from ICES and other European working groups.

For benthic habitats, the integrated assessment units are currently set at the OSPAR Region scale. During this workshop, works will be done to discuss the need, opportunity and consequences to further subdivide these Regions, notably according to a recent TG Seabed document (See presentation by Sander in the following session), based on biogeographical/hydrological areas. It would be interesting, if possible, to have similar or nested assessment areas between benthic and pelagic habitats.

#### **5. Expert Group: Assessment Scales and Spatial Integration**

##### **Benthic group**

- Presentation by Sander Wijnhoven (NL): Biogeographic subdivision proposal, by TG Seabed and ICES, of marine assessment units for OSPAR and MSFD

During the discussion, it was recognised that subdivision based on pelagic and ICG-EUT marine landscapes would make sense for benthic habitats as it implies specific biogeographical context. The potential consequences for each indicator was discussed:

- BH3 and BH4: Assessment are done at (Broad) Habitat Types scales, for each OSPAR Region. Thus, further subdivisions will not affect the resulting disturbance/lost maps, but rather the percentage of disturbance/lost per habitat type and per assessment unit (Region versus subdivision of Region).
- BH2a: Assessment is done at the Water Framework Directive waterbodies scale. Further subdivision will thus not affect the resulting waterbodies quality status, but rather the number and proportions of GES/not GES waterbodies per assessment unit.
- BH1 and BH2b: These indicators are at even finer scales (benthic habitat communities), and the natural composition of the benthic communities may vary depending on the

biogeographical context and area. It was not planned in the current Nea Panacea timeline, but it should be tested in the future, if sufficient data are made available, about the applicability and variation of results (including reference lists of species, biological traits) of these two indicators between biogeographical area (e.g. subdivision of Regions according to TG Seabed proposal).

As a first conclusion, it was agreed that subdivision of marine Regions, according to biogeographical areas influencing benthic communities (e.g. TG Seabed initiative), would make sense for benthic habitat assessments. Nevertheless, the exact delineation and source of subdivision have to be further discussed during this workshop. These subdivisions should then be tested, notably by studying the variations of the results of fine scale indicators (BH1, BH2), to be able to conclude. This will be considered in the works on data planned, but this test at OSPAR maritime area scale is not planned currently and will need extra resources, data and time to be conducted.

### Offline sessions

#### 6. Mixed Expert Groups: Assessment Scales and Spatial Integration

This session was the opportunity to open the discussion on assessment scales and biogeographical subdivisions of Regions to a wider audience, with experts from other biodiversity groups. Several subgroups were meeting in parallel. The following points are resulting from the discussion of a subgroup attended by the author of these minutes.

For benthic habitat, even if known through models and abiotic parameters, the current limitation of sampled benthic communities' available data (including lack of monitoring), and resources, in many OSPAR maritime areas, limit the capacity to model or even test and clearly characterize different biogeographical subdivisions. For MSFD and management of anthropic pressures, the risk-based approach is recommended and drive the monitoring, but for characterizing reference natural communities, biogeographical areas, and climate change effects, additional monitoring is also required.

For Fish, assessment is done pragmatically at regional scale, but ideally, it would be interesting to test subdivision of biogeographical or specific area (e.g. shallow waters, islands archipelago, etc.), as it influences fish communities and populations.

For marine mammals, it would be useful to scale down information observed at wide scales, also for population distributions' models.

For pelagic and food webs, the development and use of ecological indicators, based on model approach, would help to better understand and define ecologically relevant assessment units for marine ecosystems.

For integration between biodiversity component, common or nested assessment units are prerequisites. It would be interesting to test the current overlapping of the different assessment units used for indicators of the different biodiversity components. The gaps in data coverage will probably limit this exercise, but some areas could be identified where to compare assessment units at finer

scale. It would also help to identify areas which requires new data acquisition, notably in specific biogeographic areas, risk areas, or biodiversity hotspots.

It was recognised that this study was not planned initially for SuperCOBAM and requires more time, data and resources to be done properly. Its technical aspects and cooperation between experts should be identified and described for next steps and action plan resulting from Nea Panacea for QSR2023. Nevertheless, attending experts expressed the need to further progress this important step, even conceptually. As time was lacking to progress this task, it was planned to be further discussed and progressed later to another dedicated session of this workshop.

**ACTION:** Another dedicated session to progress this important preliminary step towards integration between indicators will be proposed to be held during this workshop.

About spatial and indicator integrations (next step and in preparation of day 2 dedicated sessions), it was highlighted that current approaches and use of “integration” term is quite different between mobile species and habitats, even conceptually.

Benthic habitats developed a conceptual integration between benthic indicators ([EcApRHA project deliverables 2.3 and 4.1](#); [Elliot et al., 2018](#)), to assess the state per habitat type. There is no integration between habitat types, which is the final assessment reporting unit. The effects of each specific pressure type, for which data are available, are currently assessed separately, and cumulative effects of pressure is still a scientifically challenge.

Pelagic habitats do not consider currently any integration between pelagic indicators.

Food webs is by definition cross-cutting/integrating several biodiversity components and scales, but indicators are currently assessed separately and most of them focussed on one biodiversity component.

Mobile species (mammals, birds, fish) developed “decision rules” for integration within or between indicators, which is different of what is called integration for benthic habitats. For endangered species and commercial species of fish, the “One Out, All Out rule” (OOAO) is often used as a decision rule for integration between indicators.

Non-indigenous species are currently assessed at OSPAR by a unique indicator (NIS3), which de facto prevent any integration method for now.

## **7. Plenary discussion: Assessment Scales and Spatial Integration**

The main key message from experts’ subgroups were reported, and following key messages the next day by the organisation team:

- Meeting in person, and mixing expert groups is very fruitful and efficient, improving also coherence and mutual understanding. This should happen more often, and for longer work sessions, and ideally by dedicated resources planned by OSPAR.

- More work is needed to conclude on, and especially define, subdivisions of OSPAR regions relevant for all or several biodiversity components. The technical aspects were discussed and this task should be part of a future action plan. Nevertheless, the conceptual and potential subdivision will be further worked during this workshop.
- The ground-truth data currently available limits the models and possibility to characterise relevant biogeographical assessment units for several components, notably for (offshore) benthic and pelagic habitats' species communities.
- Whatever the assessment units or integration methods developed, it will be important to clearly communicate underpinning ecological reasons, and limits, for its use under MSFD or any other environmental management issue.

## **Day 2 – Thursday the 21<sup>st</sup> of October 2021**

### **Offline sessions**

#### **1. Activity 2 café - A NEA PANACEA-specific event aimed at cross-cutting aspects of the project**

The Nea Panacea activity 2 is transversal between ecosystem components, as it is focussing on assessment scales, eutrophication and food webs aspects, investigating tools to link pressure and state indicators in the context of the climate change. Among these tools, works are planned using satellite observation data (JMP EUNOSAT) and model analyses (LiACAT and ENA). These dedicated SuperCOBAM sessions aims to present planned tasks and investigate with OSPAR indicator leads which data could be relevant and available, and where, and how to link works planned.

- Presentation by Silke Eilers (NL): LiACAT and ENA models

The participants split in three “world café” subgroups, where discussion was chaired by Activity 2 task leads, and focussing respectively on satellites observation, eutrophication assessment, and models. The results of this session will be detailed in the full SuperCOBAM workshop report.

#### **2. Pre-discussion: Integration of indicator results**

As a logical next step after the preliminary required assessment scales and units, some discussions already started the first day on integration. The activity 2 concrete tasks will also reinforce the link between biodiversity components assessment. After the presentation later today to all participants of ongoing works in OSPAR expert groups ICG-EcoC (DAPSIR and bow-tie approaches) and CCEG (climate change), the chairs of expert groups and mixed subgroups will encourage participants to further works on these aspects of integrating indicators results, considering all this context.

### **Online sessions**

#### **3. ICG-EcoC: AdrianJudd**

- Presentation by Adrian Judd (ICG EcoC): Drivers, Activities, Pressures, State, Impact, Response (DAPSIR) and “Bow-tie” approaches for the OSPAR biodiversity thematic



assessment.

Discussions after this presentation was about what ICG-EcoC and ICG-COBAM could do for each other, to be further discussed in following groups' meetings.

#### **4. CCEG: Stephen Dye**

*Session cancelled (Participant not available)*

#### **5. Expert Group: Integration of indicator results**

##### **Benthic group**

In the following of the previous day discussion (and today sessions), and as new methodological elements to be considered for integration method between benthic habitats' indicators, it was decided to discuss around two recent national initiatives from UK (MarESA method) and Spain (integration of BH1 and BH3, according to Elliott et al, 2018).

- Presentation by Liam Matear (UK): the UK initiative on the spatial aggregation of sensitivity of habitats: the MarESA method

This method is interesting as it proposes a compilation of known (and unknown) sensitivity categories, from species communities' level to Broad habitat types, which is one of the key methodological gaps highlighted in the current integration method (Elliot et al, 2018). It has the advantage to keep all finer scale information available, but the rule how to set a value (or range of values) to broader scales is still to be defined. Several options exist (OOAO, average, percentile, etc.) and would need more discussion depending of the aim and context of assessments.

These compiled sensitivity categories per habitat type may also contribute to define "confidence maps", based on the more or less complete level of knowledge, per habitat type, on species communities' sensitivities and variabilities. However, it was acknowledged that, whatever available and accurate would be a confidence map, in general, most of people will first look at the disturbance map, and few will make the effort to relativize the results according to the related confidence.

Before the next presentation on this integration methodological gap, a slide was presented to remind or present to new OBHEG members the method developed during EcApRHA and OBHEG, and as published in Elliot et al (2018).

- Presentation by Laurent Guérin (co-chair): EcApRHA Benthic integration method

The Spanish colleagues presented a national initiative based on this method and recent indicators progress.

- Presentation by José Manuel González (ES): The Spanish initiative on fine scale/wide scale integration between BH1 and BH3

This method, applied for Spanish MSFD assessment, and submitted for publication in Marine Policy, is also interesting as based on OBHEG previous works and proposing a simple and quantitative method for combining both indicators results. However, uncertainties linked to both indicators (sensitivities species lists, spatial resolution of state and pressure data, etc.) are also combined. With BH1, the species list used is a key element and depends of the (biogeographical) assessed area considered. For example, there is a need to include Region IV specific lists to BH3 matrices to enable its assessment in Region IV.

As a conclusion, it was acknowledged by the group that these two methods are both progressing the thoughts on the benthic indicators' integration methods, even if some methodological details still need to be clarified and tested to develop a fully operational methodology. These methods address different methodological gaps and could even be complementary if adapted in the integration method context. Respective UK and Spanish teams were encouraged to report progress on this at next OBHEG, where discussion on these aspects should be also progressed with the perspective of (sub)regional integrated assessments methods.

For MSFD, the recommendation discussed in TG Seabed should also be considered, and interactivity with OBHEG works facilitated. Each indicator, and integration methods, contribution to MSFD criteria should be clarified. A draft document was notably cited as important for integration rules.

**ACTION:** OBHEG to propose and discuss during the next meetings, specific lists of species, related to sensitivities at defined pressure, or functional groups. UK and Activity 2 teams to interact to incorporate relevant sensitivity species lists, notably with Spanish, French and Portuguese teams for Region IV, and in general with experts from any relevant biogeographical (sub)region to be assessed by BH3.

**ACTION:** Methods to be clearly described in each indicator CEMP document, and clearly highlighting for BH3 what is new compared to previously agreed BH3 CEMP guideline.

**ACTION:** Further progress and application of these methods to be reported and discussed in the OBHEG future meetings, also with Nea Panacea tasks 3.2 (BH1), 3.4 and 3.5 (BH3 development and scenario) and 3.7 (thematic assessment).

**ACTION:** Links between indicators, integrated methods and MSFD GES criteria to be clarified by indicator leads and OBHEG. Petra Schmitt (DE) to send the TG Seabed doc to all group + Silke: *SEABED\_6-2021-03rev2\_GDArt8-D6\_short-draft\_20210628.doc*

## Offline sessions

### 6. Adrian Judd:Provisions

The results of this session will be detailed in the full SuperCOBAM workshop report.

### 7. Mixed Expert Group:Integration of indicator results

For this session, expert groups' chairs summarized and shared information on what was discussed in

respective groups, about assessment scales and integration methods.

For benthic habitat, one of the common assessment unit is the broad habitat (or other specific) type. The assessment units are thus nested in the assessment at Region or subregion levels. However, the biogeographical specificities of species communities (finer biological scale) and related sensitivities to each pressure type may influence each indicator assessment, per habitat type. Before any operational quantitative integration between indicators, the use of each of them and associated species and sensitivities lists should be tested and fixed. All indicator leads and teams are encouraged during their future works (short or longer term) to test this, notably between subdivision of the current OSPAR Region as discussed during this workshop and future works in OBHEG.

**ACTION:** Indicator leads (and teams) to consider biogeographical variation (and related subdivision) of species communities and sensitivities lists of habitat types in each OSPAR (sub)Region when testing or assessing indicators, notably for BH1 and BH2 indicators, and sensitivity data underpinning BH3 and BH4 assessments. A coherence is needed to enable integration between indicators.

A discussion started about integration perspectives for non-indigenous species (NIS). An expert remind that this discussion took place during a previous mixed group workshop (SuperCOBAM, June 2019, Paris). A preliminary idea was to combine the distribution/abundances of targeted NIS invasive species (as MSFD D2C2 criteria, biological pressure) to habitat maps, with a similar approach that BH3 and Elliot et al (2018) integration method, to produce a disturbance maps of habitats (as MSFD D2C3 criteria). Some functional aspects and case studies by the Food Web expert groups were also discussed. This should be further discussed in both groups, or better, together, to check relevant data (or area with data) available, and additional resources and work plan to test this. The consideration of NIS in benthic communities' lists, both for sensitivity to pressure, resistance/resilience and related biotope structure, functional groups and dynamics. These technical works are not possible during Nea Panacea and OSPAR QSR2023 timelines, but is identified as a perspective for future inter-component and experts' groups works. These perspectives could also be discussed and reported by experts in other working groups (e.g. TG Seabed, ICES, etc.)

**ACTION:** Benthic, NIS and any other interested expert group lead to plan mixed discussion and potential resources for progressing conceptual integrated methods, based on current respective indicators and assessment methods, to assess the effect of NIS on biodiversity component (as part of biodiversity AND a biological pressure).

## **8. Plenary discussion: Integration of indicator results**

For this session, expert groups' chairs summarized and shared information on what was discussed in respective groups, about assessment scales and integration methods.

The draft results of the discussions on potential subdivision of OSPAR subregions, notably for benthic habitats, is presented in the Annex 3.

**Evening event: Dinner at the Green House Restaurant**

## Day 3 – Friday the 22<sup>nd</sup> of October 2021

### Offline sessions

#### 1. Activity 2 café - A NEA PANACEA-specific event aimed at cross-cutting aspects of the project.

After the verbal presentation of the aim of this session, and file template send by email, indicator leads were invited to summarize in a wall the state of development and policy acceptance and implementation of respective indicator thresholds. The results of this session will be detailed in the full SuperCOBAM workshop report.

**ACTION:** Indicator leads to send to Lisette requested filed file per indicator, describing the respective narratives.

#### 2. Pre-discussion: Threshold Values and Thematic assessment

The previous session highlighted the very various stages of development of thresholds between indicators. For habitats and food webs, they are mostly still at a conceptual stage. As big progress was made previous days in mutual understanding and options for assessment scales and integration, and as these stages are required to discuss about thresholds setting, it was decided by some experts (notably benthic and pelagic) to dedicate the 3<sup>rd</sup> day session to further progress this and thematic assessment, instead of the initially planned thresholds. For benthic habitats, dedicated meetings were already planned in the following weeks, to discuss thresholds specifically, and will contribute later on this topic.

### Online sessions

#### 3. Response/Measures:Emily Corcoran

In the context of the DAPSIR approach applied to thematic assessments, the “R” is linked to measures. This specific task was presented by the OSPAR contractor, Emily Corcoran.

Presentation Emily Corcoran: The “Response” part of the QSR2023 thematic assessment: workplan and ongoing inventory of measures per biodiversity component.

**ACTION:** All experts to review Emily’s Excel file and identify/forward her gaps in the measures linked to them biodiversity component.

#### 4. Lena ex machina

Lena (OSPAR secretariat) had the stage to address the questions that were raised during the workshop. This is a follow-up of day 1 and a preparation to day 3 following sessions. For benthic

habitat, it was proposed to discuss on the structure of the benthic habitats' thematic assessment, and Lena kindly agreed to participate to the Benthic Habitat expert group to present her draft proposal and work on it with benthic experts.

## **5. Expert Group: Thresholds values**

### **Benthic group: Thematic assessment, according to assessment scales and integration**

Discussion started around the drawn draft proposal presented by Lena of the structure of the "State" part of the DAPSIR benthic habitats' thematic assessment (Figure 2). In the light of previous discussion on assessment scales, subdivision of regions and integration, this proposal was received by the expert group as a very good structure, compatible with all indicators and previous discussions, and making also much clearer and concrete what to produce as a deliverable for the QSR2023. The main elements of this structure (also compatible with MSFD requirements) is about assessments per:

- OSPAR (sub)Region (sub to be further discussed through biogeographical previous are discussed)
- (Lines) Broad habitat types
- (Rows) Indicator results and/or related pressure type assessed (by each indicator)

During this discussion, it was made clear that there would currently make no sense (both ecologically, scientifically and for management issue) to merge the values from each indicator and pressure types (rows) to a unique value (MSFD D6C5 criteria) per habitat type, and it would be better to have all rows values available as a dashboard, to identify specific impacts... and gaps in state/pressure relationships currently assessed.

According to the big gaps (data and common indicator) in Regions I and V, there are currently initiative to inform them respectively by contributions from the Arctic Council and ICG-POSH (for listed habitats).

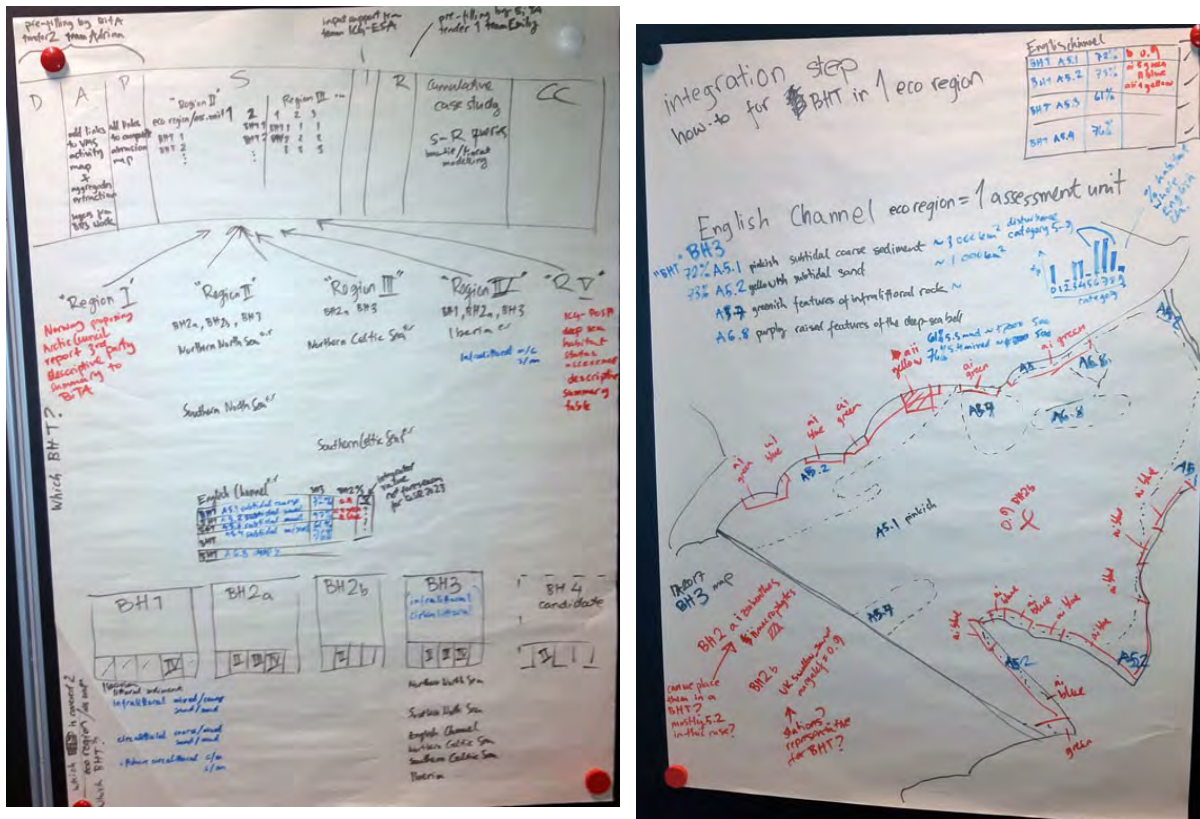


Figure 2: First and initial draws by Lena Avellan© of a proposed structure for the benthic habitats' thematic assessment

About combining indicators maps and assessments results (See the right part of Figure 2), by testing it conceptually in a subregion, it was recognised that there will be quiet few overlap, at least between BH2a (very costal waterbodies) and BH3 (offshore abrasion by fisheries, with gaps on very coastal fishing boats activity). Assessment of BH1 (BISI), BH2b and BH4 will be limited to parts of the Region II and should be tested when available. Same for the BH1 (SoS) assessment in Region IV, where there is already an initiative to combine BH3 and BH1 assessment here as a case study for integration between these indicators.

As a conclusion, this structure seems promising but should be further tested when all draft indicator assessment will be available, hopefully next Spring 2022.

**ACTION:** Laurent and Cristina (OBHEG co-chairs) to progress (numerically) this Benthic habitats' thematic assessment draft and share with OBHEG (and Lena) to progress discussion and testing contents at next OBHEG and COBAM meetings.

## 6. Mixed expert group: Thresholds values

For this session, expert groups' chairs summarized and shared information on what was discussed in respective groups, about assessment scales and integration methods.

For benthic habitat, it was recognised that there is currently only BH2a with agreed thresholds (through the benthic biological quality elements of the Water Framework Directive) and discussion for other indicator are currently at a preliminary stage, requiring more methodological development and to be tested by scenario when draft assessment will be available. There are notably some plans on this for

BH3 through Nea Panacea tasks 3.4 and 3.5. Nevertheless, progress made, presented and planned during these 3 days on indicator method and assessment development, assessment scales and integration, and thematic assessment are definitively building stronger foundation to enable in the future discussion and testing on benthic indicators' thresholds options and values.

### **Offline sessions**

#### **7. Emily Corcoran (measures): provisions**

The results of this session will be detailed in the full SuperCOBAM workshop report.

#### **8. Lisette Enserink (thresholds): provisions**

The results of this session will be detailed in the full SuperCOBAM workshop report.

#### **9. Plenary discussion: Conclusions and take away key messages**

The workshop finished by a plenary session of all physical participants, trying in live to produce key messages about the outcomes of these 3 days workshop:

##### **Pelagic experts**

- D1C6 is not appropriate, justified with some bullet points, to be considered over the weekend
- Threshold values; might not be possible to develop so aiming for qualitative description on what is good status and what is not
- Spatial assessment unit: go for COMP4 eurosat units, further actions include exploring classifying by type
- Integration; SOMETHING

##### **Benthic experts**

- The stocktaking of data that is available was progressed and will enable when completed to clearly define area which will be really assessed (and start all indicators draft assessment!).
- Spatial assessment units: First proposal developed, shapefile to be created in next step. Aiming to align for all indicators which will make it easier to present information at the next level, notably the Benthic habitats' thematic assessment and explore links with other components, notably pelagic habitats' thematic assessment.
- Integration of indicators: The conceptual method exists to combine indicators exists (Elliot et al, 2018), and some methodological gaps were also progressed, but in terms of MSFD criteria integration, there is still a conclusion that the Broad habitat type is the last relevant integrated reporting unit, and that there is currently no sense to integrate the different information and results between different pressure type in a single value (D6C5). A dashboard of results of all other criteria contributing to D6C5 would be more relevant, both ecologically, scientifically and for management issues.

- Thresholds Values: this is a very challenging task, further work is foreseen on next steps, but it is not foreseen that Threshold Values will be fully developed by QSR2023. Different regions are at different level of development, both science and policy based questions need to be addressed. BH2a is the only benthic indicator with n agreed threshold. A 'Narrative' for a BH3 threshold has been described, and will be discussed in the next OSPAR relevant meetings.
- We will need to clearly indicate what will be each NEA PANACEA product and what could be a QSR input, because an agreement have to be reached at several OSPAR committees levels and this can be challenging according to QSR2023 timeline. Nevertheless, the Nea Panacea timeline is currently fitted to submit all products end 2022, which would enable submission of all products to end 2022 COBAM and BDC meetings, and agreement in Spring 2023 for QSR production.
- There is substantial progress expected in the benthic habitat OSPAR QSR outputs compared to previous (2017) assessment outputs, recognizing that some state-pressure relationships are still not yet developed.

#### BiTA query on State chapter content

- BiTA query on State chapter content: Structure and components has been discussed and clarified. Post-meeting, would be good if experts could go into the 0301\_doc in BiTA on sharepoint to fill it in.
- Bow-tie / ICG-EcoC and LiACAT approach, good discussion to clarify how they link up, follow-up on the agenda to continue the discussion.

#### Bow-tie & LiACAT

- Good discussion to clarify how they link up, on the agenda to continue the discussion

#### General comments

- Joining and mixing groups (such as biodiversity and eutrophication) in a physical meeting was very successful, this should be taken into account in the future and that such meetings should be resourced from OSPAR Contracting Parties.
- It was considered extremely fruitful to have mixed expert group discussions. We should consider back-to-back meetings for expert groups to allow for more mixing.
- Topics are dense and complex, difficult to come to closure on all topics so maybe need to focus on one topic that can be closed and concluded on in the future.
- QSR timelines are pressed, important to remember that NEA PANACEA should also have time and space to explore new approaches for example on food webs and be part of the project deliverables even if not QSR 2023 products.
- Come forward with proposals for what topics can be best handled at ultraCOBAM by those who will be invited to that meeting. UltraCOBAM will be physical meeting with biodiversity experts.
- Hybrid superCOBAM has been inclusive which is good, but it is also dragging down the live physical event. The ultraCOBAM would be fully live.



**Annex 1: Minutes of the OBHEG 19<sup>th</sup> of October 2021 meeting**

## Annex 2: SuperCOBAM initiative to start a table on some indicators to describe and compare their theoretical assessment scales and data requirements

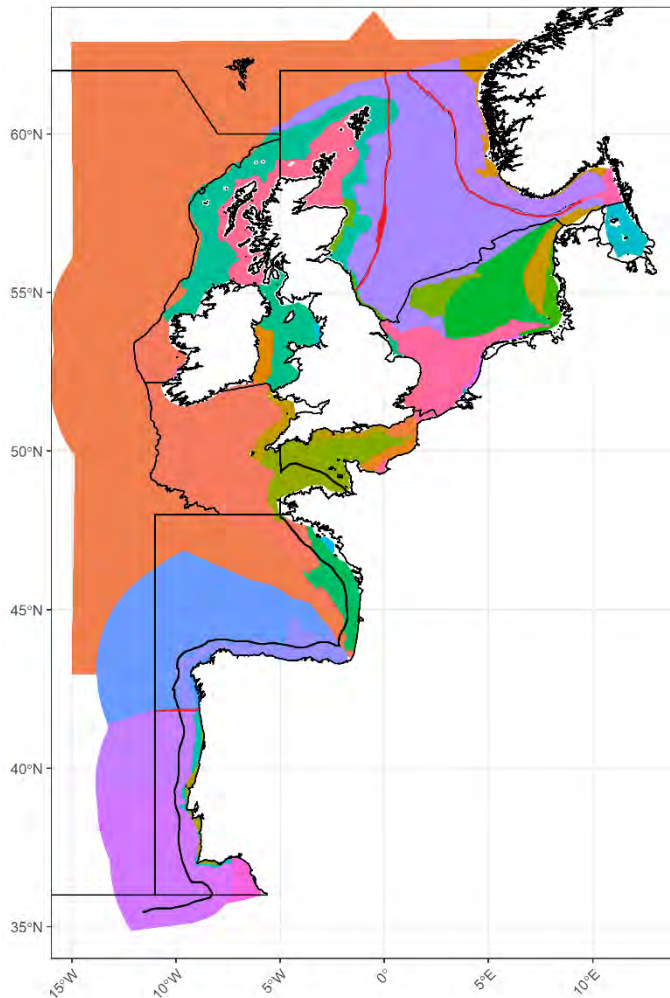


Indicators  
assessment scale\_HB (Embedded Excel file)

OSPAR indicators: Data requirements and assessment scales						
Indicator	Biodiv component	Pressure(s)?	Theoretical assessment scale	Type of Data (data calls & requests)	Data = 2022 pragmatic assessment area	Comment
BH1	community -> typical species	Any but species list adapted to pressure type	(biogeo) subdivision of region	Stational, several countries from Regions II, III, IV	(part of?) Region IV + (south) part of Region II (where commonly agreed + limited resources)	Action Laurent = check with FR "chantier collecte de données" for FR data BH1/BH2b
BH2a	community some coastal habitats	nutrient+organic enrichment (eutro)	coastal waterbodies	EEA WFD Database (to be completed by UK national data post-2017)	Coastal waterbodies region II, III, IV (data for all coasts, but political)	Action Anna = check with national experts/WFD contacts, if waterbodies shapefile are ok, and then after, if benthic quality results are ok and complete (after
BH2b	community	abrasion by fisheries	(biogeo) subdivision of region	Stational, several countries form Regions II, III, IV	South part of Region II (where commonly agreed + limited resources)	Action Laurent = check with FR "chantier collecte de données" for FR data BH1/BH2b
BH3 (abrasion fisheries)	Broad HT (+ OHT?)	abrasion by fisheries	OSPAR region	BHT EUSeamap 2021 + VMS abrasion (2021)	Offshore Region II, III, IV (data all region but political)	Spanish data in, but not PT = issue for part of Region IV where PT fleet operate with bottom trawling + VMS boats
BH3 (aggregates)	BHT? OHT?	aggregates extraction	(Coastal?) Areas where aggregate activities occurs	BHT EUSeamap 2021 + aggregate data call ongoing (2021)	Offshore Region II, III, IV (where data available)	
BH4 (cumulate multi-activities)	Broad HT (+ OHT?)	Several activities (See DPSIR theatic)	(Coastal?) Area where assessed activities occurs	BHT EUSeamap 2021 + VMS abrasion (2021) + aggregate data call ongoing (2021) + Wind farms + etc...	All Region II including Channel (where pilot agreed + limited resources)	
PH1FW5	community - functional groups	climate change, eutrophication, maybe fishing	(biogeo) subdivision of region	Stational and Continuous Plankton Recorder, several countries from Regions II, III, IV	<b>Regions II, III, IV though there are some areas that may not have data</b>	Still waiting on FR data. CPR data will be ready to use.
NIS3	species (of taxonomic groups)	Is a (biological) (source of) pressure	[(biogeo) subdivision of?] region	National new introduction recorded per time periods	To be informed by Peter S (data available, works plan) and discussed through NIS-EG (relevant scale)	Action Laurent = check with FR "chantier collecte de données" for FR data NIS3
SuperCOBAM: Biogeographic subdivision of regions still to be decided, in link with marine pelagic landscapes (See TG Seabed/ICES proposal) to merge assessments for several issues (OSPAR, MSFD, national, etc)						
Activity 2 (Silke) on Dogger bank : UK data = Stefano to check if Dogger bank data under BH1 call are included, and then can be used for FW to check also if biomass is a parameter in these data)						
Kategatt/Skategatt = poor definition for habitats maps = limitation to apply BH3 and BH4. Data exists but still confidential. Cristina/Liam to check with Norbert how to solve this if possible to solve this in time for BH3/BH4 assessment needs						

### Annex 3: Draft results of the discussions on potential subdivision of OSPAR subregions, notably for benthic habitats

Red lines = to be decided, needs further national consultation to settle



- English channel as in IA2017 BH3 (note OSPAR Region II/III boundary change to align with MSFD sub-area)
- Southern North Sea as in IA2017 – but double check exact line to see if it can be aligned with ecoregion of ICG-EUT/pelagics line, check whether aligned with the bird-boundary as well
- Northern north sea 1 unit as in IA2017 or 3 as proposed by TG Seabed? CONFIRM if we are to ALIGN WITH MSFD sub-region boundary in the north?
- Celtic seas north as in IA2017 – CONFIRM if we are to ALIGN WITH MSFD sub-region boundary in the north and westwards to 200nm?
- Celtic seas south as in IA2017 - CONFIRM if we are to ALIGN WITH MSFD sub-region boundary in the north and westwards to 200nm?
- Iberia – split along 800m depth contour in shallow/deep, then split horizontally (keep where it is now ie. ICG-EUT/pelagic boundary alignment OR move a bit south to align with TG Seabed proposal) ADD a red line for Cadiz?

# SuperCOBAM workshop report Annex O

## SuperCOBAM threshold values session

*Inventory of baseline and threshold value narratives and underlying reasons for choosing a specific narrative*

Expert group	Indicator	Expert name	Baseline		Threshold value	
			Type of narrative	Motivation	Type of narrative	Motivation
Food webs	FW9: Ecological Network Analysis (Multitrophic Level Indicator)	Ulrike Schückel	Still under discussion: Percentile approach (still under discussion) or to use the starting year of the Habitat-Directive (1992) for coastal food webs	A pristine/historic situation is currently missing	Trend-based approach/threshold setting method	A pristine/historic situation is currently missing
Pelagic habitats	PH1/FW5 (and PH2 and PH3)	Abigail McQuatters-Gollop	For PH1/FW5, we will use the assessment period as our consistent period across lifeforms, datasets, and spatial areas. We will then use the rest of each time-series as our comparison period.	We have this approach because we have time-series of all different lengths. If we take the oldest period available across all of them to use as our baseline (2008-2014) we lose way too much interpretive information and context.	What's most important for all three pelagic habitats indicators is what is driving the observed change. Therefore our narrative will focus on drivers of change as this is the information most useful to managers and for interpreting change in other food web indicators.	Right now we feel that TVs probably won't work for our pelagic indicators but we have some ideas to test around Ecological Quality Ratios or p values in trends, etc, that will still allow us to determine GES or not GES. Either way, the narrative is key in linking drivers of change to indicator change.

Marine birds	B1 (Bird Abundance).	Stefano, Matt, Volker	LIMIT REFERENCE LEVEL	In the lack of information of abundance level in pristine areas, the indicator uses the starting point levels from long term time series (30-40 years of data) as baseline. Considering the length of the time series the broad assumption is that pressures affecting bird abundance were less intense albeit unlikely at pristine levels	LIMIT REFERENCE LEVEL	The indicator uses 70% of the baseline as a threshold for good condition for species laying >1egg (or 80% for species laying 1 egg). These thresholds are derived from statistical properties of normal distribution (70% of observation will fall within one standard deviation of the mean) The higher TV for species laying more than 1 egg account of the greater resilience in terms of reproductive capacity
Marine birds	B3 (Bird Productivity)	Stefano, Matt, Volker	LIMIT REFERENCE LEVEL	The indicator does not use a traditional baseline. The indicator uses the population growth rate which, if sustained, would lead to a decline in population size of under 30% over three generations, this TV keeps the species above the IUCN level for Vulnerable	LIMIT REFERENCE LEVEL	The indicator does not use a traditional baseline. The indicator uses the population growth rate which, if sustained, would lead to a decline in population size of under 30% over three generations, this TV keeps the species above the IUCN level for Vulnerable
Marine birds	B5 (Seabird Bycatch)	Stefano, Matt, Volker	REMOVAL OF CONSERVATION TARGETS	The indicator does not use a traditional baseline. The indicator applies population viability analyses to model two scenarios of population trajectories (one with pressure occurring, one without), the difference in modelled population size between these two scenarios is used to assess whether bycatch has “threatened long-term viability”.	REMOVAL OF CONSERVATION TARGETS	The indicator does not use a numerical TV. The target is that the long-term population viability is not threatened by bycatch

	B7 (Sea Habitat Quality)	Stefano, Matt, Volker	ACCEPTABLE DEVIATION FROM HISTORIC OR PRISTINE STATE	The baseline for the indicator is Habitat undisturbed by human activity	ACCEPTABLE DEVIATION FROM HISTORIC OR PRISTINE STATE	Only a certain amount of disturbance would be acceptable but the TV is not yet defined
Marine mammals	M3: Seal abundance and distribution	Anita Gilles	Baseline set to 1992 (or start of the data series)	The baseline chosen (1992) relates to that used by some Member States for reporting under the European Union Habitats Directive (Council Directive 92/43/EEC).	Assessment value 1: "No decline in seal abundance of > 1% per year in the previous 6-year period (this is approximately 6% over 6 years)." (short-term); Assessment value 2: "No decline in seal abundance of >25% since the fixed baseline in 1992 (or closest value)." Long-term	The 25% (long-term trend) currently approximates to 1% a year since 1992. Testing shows that there is sufficient monitoring to assess against this assessment value with confidence. Where a shorter timescale is assessed, the 25% decline since the baseline is not equivalent to those AUs where data do extend to 1992 (for example, a 25% decline since 2003 describes a more rapid contraction in the population than a 25% decline since 1992). Two assessment thresholds were used to address the issue known as 'shifting baselines'. With a shifting baseline, each successive assessment is comparing slightly different sets of consecutive data points. This could allow an indicator to continually decline at a slower rate than the threshold value, so much so that after many years, the population may have declined substantially without actually being below the threshold value. To avoid the problem of shifting baselines when using the rolling baseline applied in assessment value 1, an assessment value relating to a fixed baseline is needed (assessment value 2).

Marine mammals  
M4: Cetacean abundance and distribution  
Anita Gilles

Baseline set to 1992 (or start of the data series)

The baseline chosen (1992) relates to that used by some Member States for reporting under the European Union Habitats Directive (Council Directive 92/43/EEC). The rate of decline (see below) is assessed for each species-specific assessment unit by comparing the latest abundance estimates with the baseline, equal to the earliest reliable population estimate for the assessment unit (e.g. from SCANS or SCANS II/CODA.)

For each assessment unit: Assessment (1) maintain [insert species name] population size at or above baseline levels with no absolute decrease of >30% AND Assessment (2) a rate of decrease no greater than 30% over three generations.

The proposed trend-based threshold has two parts: (1) The first part specifies no absolute decrease and is relevant irrespective of a time period. (2) The second part allows to compare an annual trend: i.e. thresholds are an annual rate of decline in abundance that must not be exceeded. These annual rates of decline, if sustained over three generations, will lead to 30% decline in abundance. The generation time varies between species which causes the different thresholds per species; e.g. the shorter the generation time the higher the annual threshold rate. Importantly, although thresholds are based on the IUCN criterion of a 30% decline over three generations, it is not necessary to wait for three generations for the assessment.

Marine  
mammals  
M5: Grey seal  
pup production  
Anita Gilles

Baseline set to 1992 (or start of the data series)

The baseline chosen (1992) relates to that used by some Member States for reporting under the European Union Habitats Directive (Council Directive 92/43/EEC).

Assessment value 1: "No decline in grey seal pup production of > 1% per year in the previous 6-year period (this is approximately 6% over 6 years)." (short-term). Assessment value 2: "No decline in grey seal pup production of >25% since the fixed baseline in 1992 (or closest value)." (long-term)

The 25% (long-term trend) currently approximates to 1% a year since 1992. Testing shows that there is sufficient monitoring to assess against this assessment value with confidence. Where a shorter timescale is assessed, the 25% decline since the baseline is not equivalent to those AUs where data do extend to 1992 (for example, a 25% decline since 2003 describes a more rapid contraction in the population than a 25% decline since 1992). Two assessment thresholds were used to address the issue known as 'shifting baselines'. With a shifting baseline, each successive assessment is comparing slightly different sets of consecutive data points. This could allow an indicator to continually decline at a slower rate than the threshold value, so much so that after many years, the population may have declined substantially without actually being below the threshold value. To avoid the problem of shifting baselines when using the rolling baseline applied in assessment value 1, an assessment value relating to a fixed baseline is needed (assessment value 2).



Marine  
mammals

M6: Marine  
Mammal  
Bycatch  
(Harbour  
porpoise  
Phocoena  
phocoena;  
common  
dolphin  
Delphinus  
delphis; grey  
seal Halichoerus  
grypus)

Anita Gilles

None

We do not need a baseline because the approach consists, for common marine mammal species, in setting the conservation objective as a maximum tolerable deviation from the carrying capacity (depletion).

For cetaceans - Conservation objective: "A "population" should be able to recover to or be maintained at 80% of carrying capacity, with 80% probability, within a 100-year period." For seals - Conservation objective (follows the US Potential Biological Removal PBR approach): "A population will remain at, or recover to, its maximum net productivity level MNPL (typically 50% of the populations carrying capacity), with 95% probability, within a 100-year period."

The threshold describes a limit to human-caused mortality. The threshold setting method is model-based and incorporates life-history and demographic parameters specific to the species and population assessed. The threshold has undergone thorough testing to ensure robustness against uncertainties and possible biases in the data.

NIS

Peter Anton Upadhyay Stæhr

focus on the approach applied in the IA2017. Basically this compares the number of new arrivals in separate 6 year periods. In addition to this, we have ongoing analysis to investigate thresholds based on absolute vs relative changes.

# SuperCOBAM workshop report Annex P

## List of participants

*Note that this list only includes the online participants that were registered. The organizers did not have a view on whether all registered participants actually attended all or parts of the sessions, nor whether unregistered participants took part in the sessions.*

### Physical presence (25)

Artigas, Luis Felipe  
Avellan, Lena  
Blauw, Anouk  
Dierschke, Volker  
Eilers, Silke  
Enserink, Lisette  
García-Alegre, Ana  
Gilles, Anita  
Gonzalez Irusta, José Manuel  
Guérin, Laurent  
Heyden, Birgit  
Holland, Matthew  
Lizinska, Anna  
Lizon, Fabrice  
Louchart, Arnaud  
Marra, Stefano  
Matear, Liam  
McQuatters-Gollop, Abigail  
Mitchell, Ian  
Parsons, Matt  
Raabe, Thomas  
Schilder, Jos  
Schmitt, Petra  
Vina-Herbon, Cristina  
Wijnhoven, Sander

### Online presence (66)

Alves, Filipe  
Angelico, Maria  
Authier, Matthieu  
Banga, Roma  
Bartilotti, Cátia  
Bear, Beth  
Best, Mike  
Blomqvist, Mats  
Bluemel, Joanna  
Bresnan, Eileen  
Carbonell Quetglas, Aina  
Carmo, Vanda  
Chabrolle, Antoine  
Churro, Catarina  
Clarke, Maurice  
Coleman, Paul  
Comas, Robert  
Devlin, Michelle  
Dinesen, Grete E.  
Dinis, Ana  
Duncombe-Smith, Stephen  
Emmerson, Richard  
Frazao, Barbara  
Frederiksen, Morten  
Geelhoed, Steve  
Gizzi, Francesca  
Godinho, Lia  
Haas, Fredrik  
Haelters, Jan  
Henriques, Filipe  
Jakobsen, Hans  
Jelmert, Anders  
Johansen, Marie

### Online presence (cont.)

Johns, David  
Kabuta, Saa  
Kreutle, Axel  
Leahy, Yvonne  
Leiknes, Øystein  
Lloyd-Hartley, Hannah  
Lobo-Arteaga, Jorge  
Lynam, Christopher  
Machairopoulou, Margarita  
Menezes, dilia  
Montereale Gavazzi, Giacomo  
Moura, Teresa  
Neves, Verónica  
Nogueira, Enrique  
Nunes, Pedro  
Oliveira, Paulo  
Otero Matias, Joana  
Petersen, Ib Krag  
Pierce, Graham  
Rombouts, Isabelle  
Ruiter, Hans  
Schückel, Ulrike  
Silva, Alexandra  
Sobrinho Gonçalves, André  
Stæhr, Peter Anton  
Stern-Kluckner, Rowena  
Taylor, Nikki  
Tett, Paul  
Tilstone, Gavin  
Torres, Maria Angeles  
Van Hoey, Gert  
Wennhage, Håkan  
Woodcock, Kirsty