



Environmental Assessment Framework

2nd UNITED Workshop



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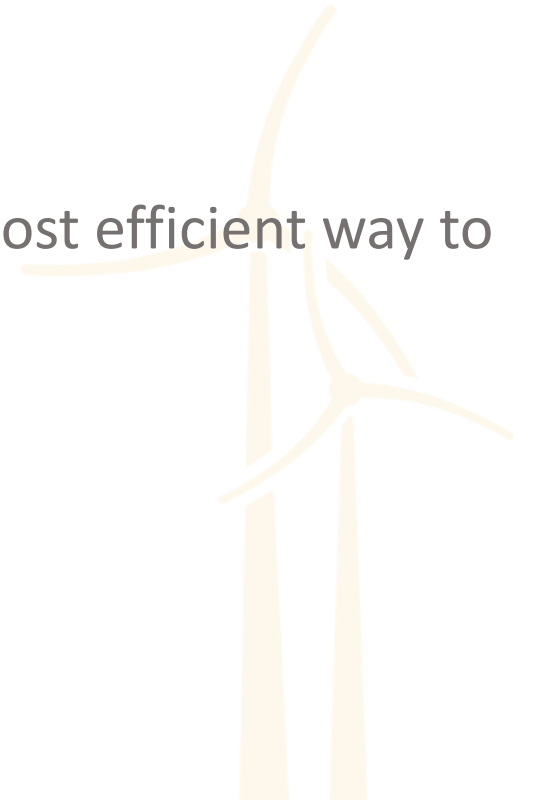
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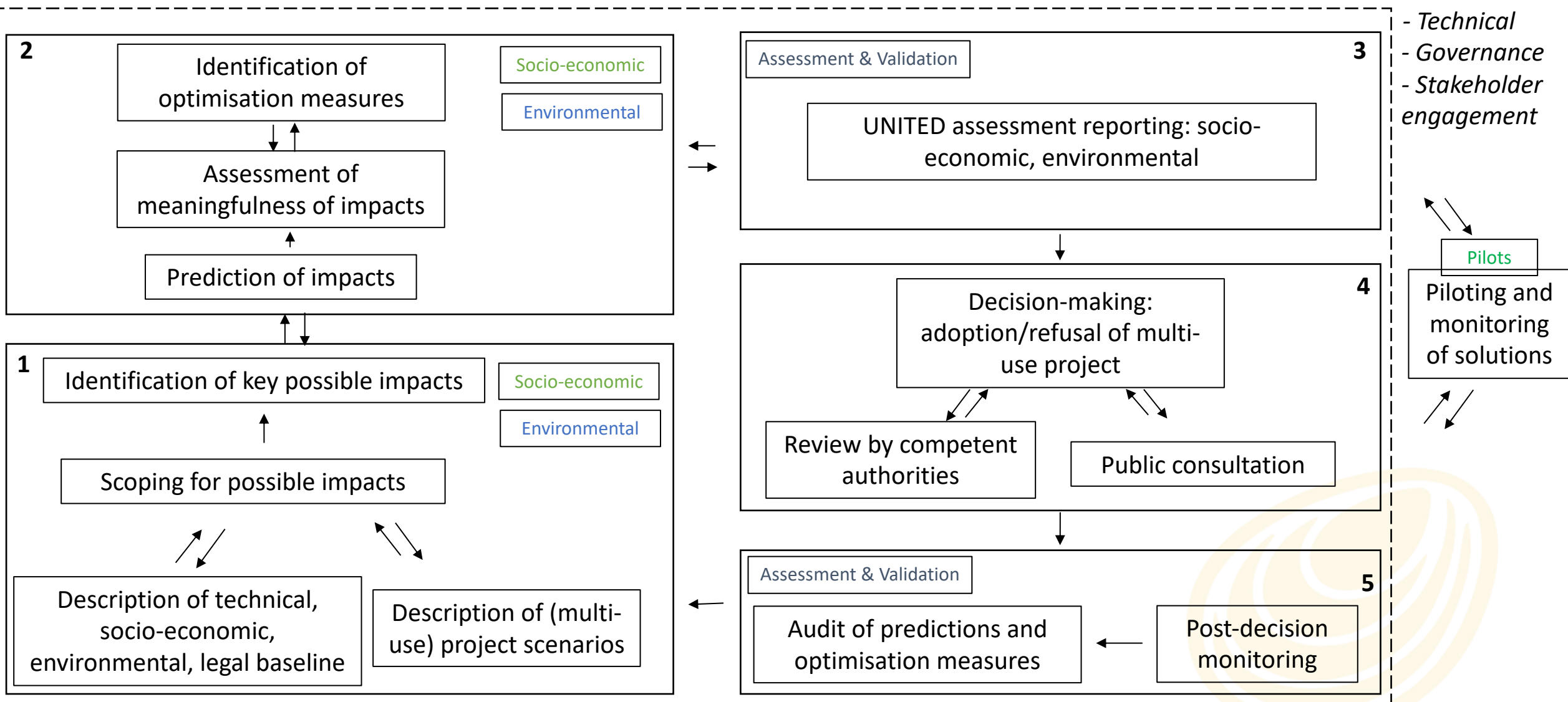
The UNITED Assessment Framework

Objectives

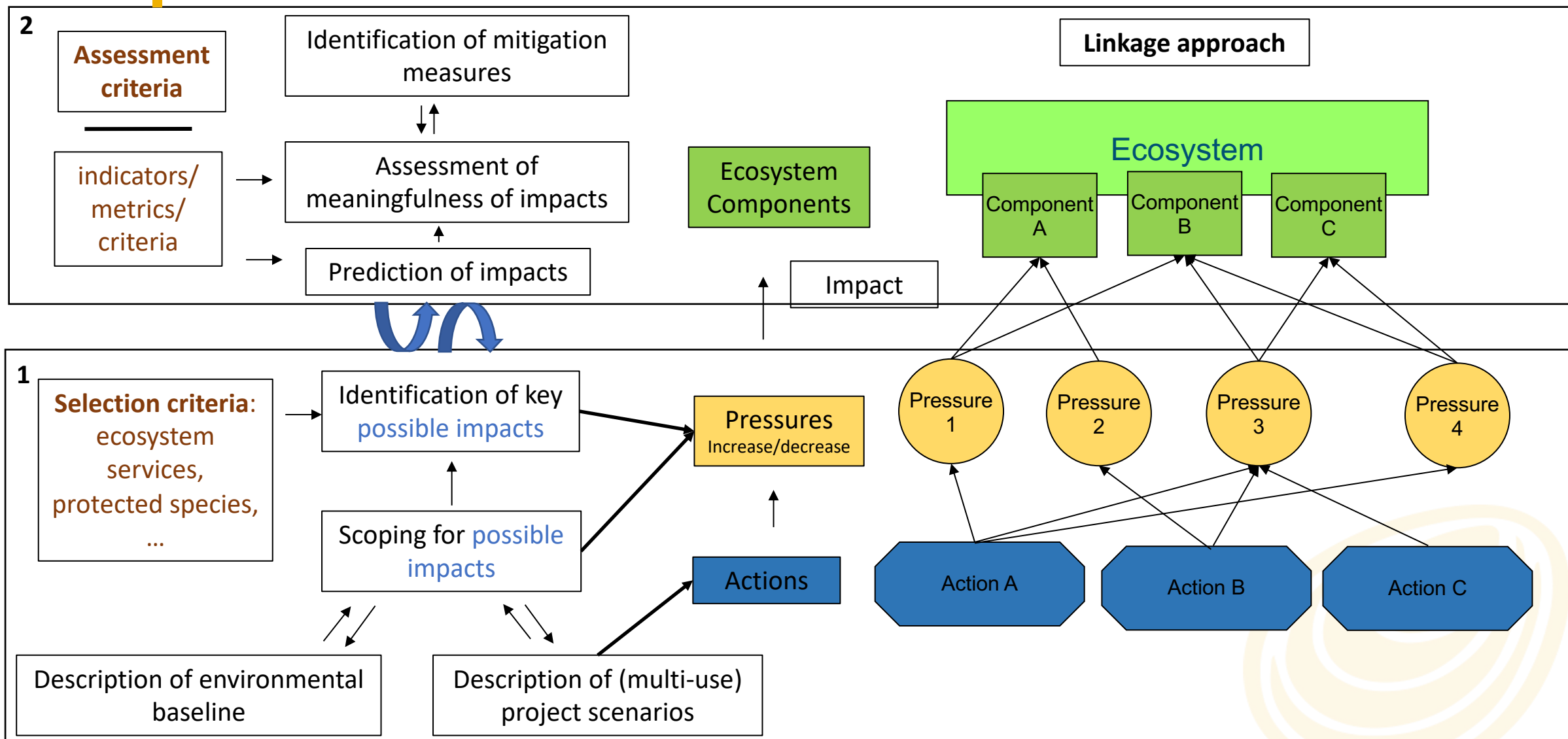
- Evaluate the impact of multi-use, relative to single-use
- Quantification and qualification of impacts (positive and negative) across different dimensions
 - Socio-economic dimension
 - Environmental dimension
- Evaluation on the applicability of the assessment frameworks -> most efficient way to conduct an assessment for a MU project?
- Evaluation of the added value of multi-use



The UNITED Assessment Framework



Implementation of the UAF

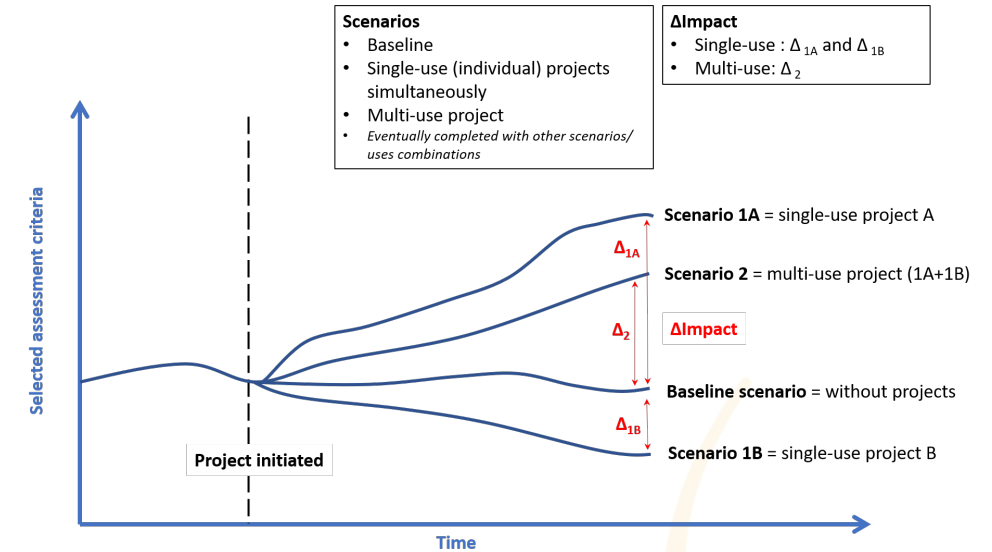


Implementation of the UAF

Relevant scenarios

The UNITED Assessment Framework applies relevant scenarios to assess impact

- (No use scenario)
- Baseline scenario
- Spatially separate single-use projects simultaneously
- Multi-use projects



Scenarios of the UNITED pilots

	German pilot	Dutch pilot	Belgian pilot	Danish pilot	Greek pilot
No use scenario	Undisturbed state	Undisturbed state	Undisturbed state	Undisturbed state	Undisturbed state
Baseline scenario	Shipping, fishing	Shipping, fishing	Shipping, fishing	Shipping, fishing	Shipping, fishing
Scenario 1 = Spatially separate single-uses simultaneously	OWF and aquaculture	Solar energy and aquaculture	OWF and aquaculture and restoration	OWF and tourism	Aquaculture and tourism
Scenario 2 = multi-use scenario	OWF + aquaculture	Solar energy + aquaculture	OWF + aquaculture + restoration	OWF + tourism	Aquaculture + tourism
Scenario 3					

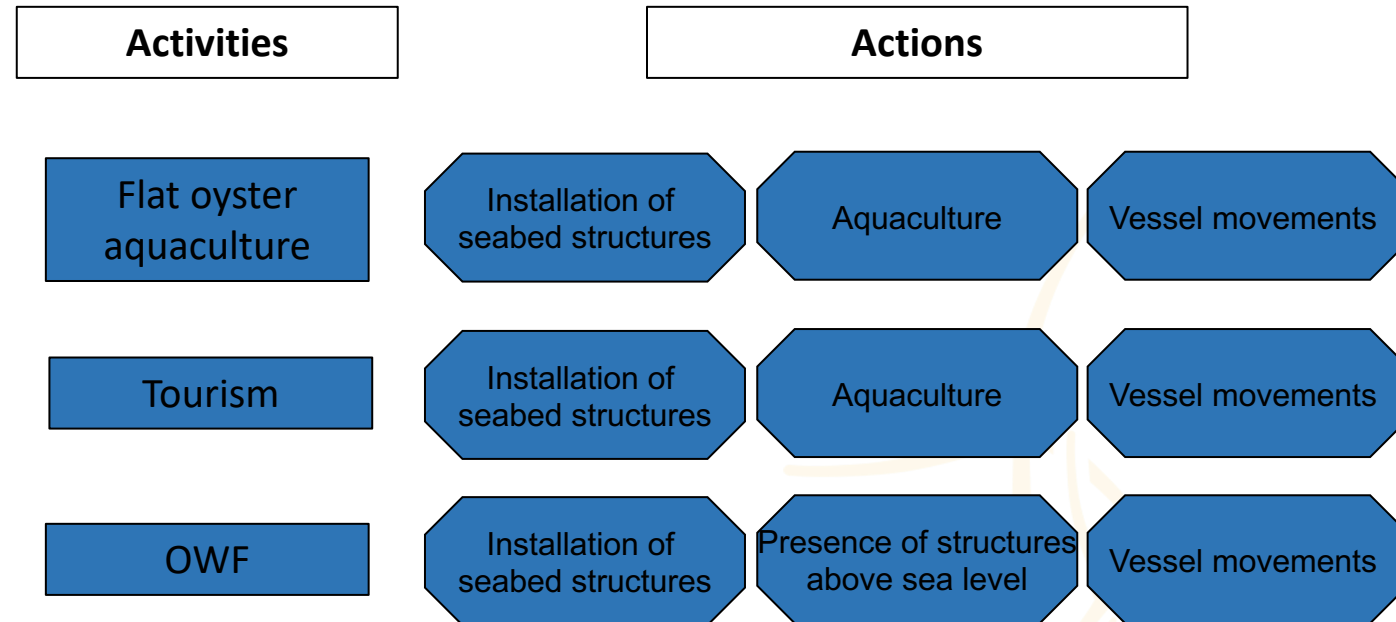
Implementation of the UAF

Linkage approach: identification of different activities

- Each activity can be divided into different actions

And also:

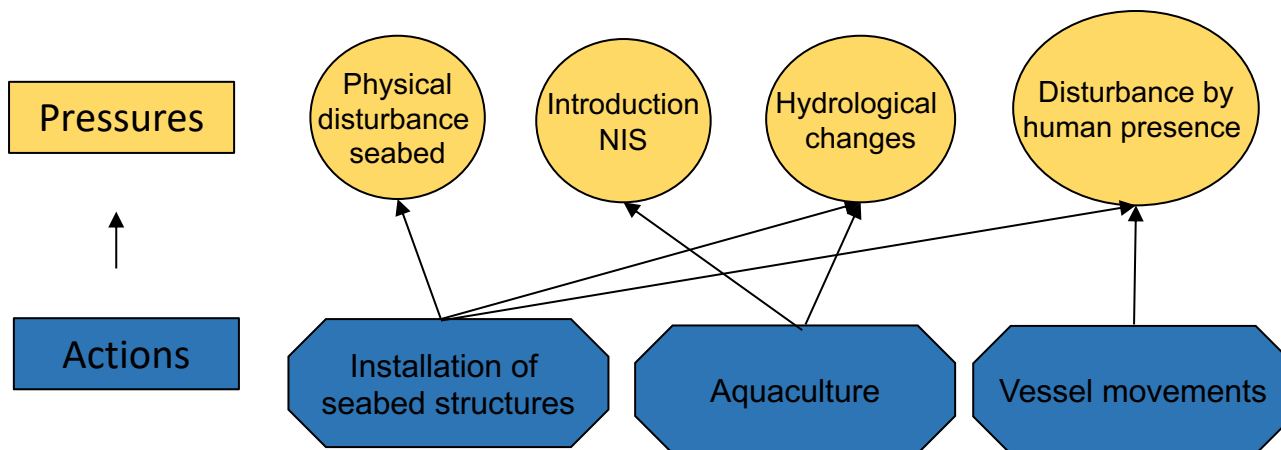
- Each action can be attributed to several activities



Implementation of the UAF

Linkage approach: linking activities with pressures

- List of pressures generated by actions
→ derived from Marine Strategy Framework Directive (MSFD)



Longlist of pressures

Biological

- Introduction or spread of non-indigenous species
- Introduction of microbial pathogens
- Introduction of genetically modified species and translocation of native species
- Loss or change of biological communities due to the aquaculture of animal or plant species
- Disturbance of species due to human presence
- Extraction or injury to species by human activities (including fishing)

Physical

- Physical disturbance to seabed
- Physical loss of seabed substrate or morphology
- Changes to hydrological conditions

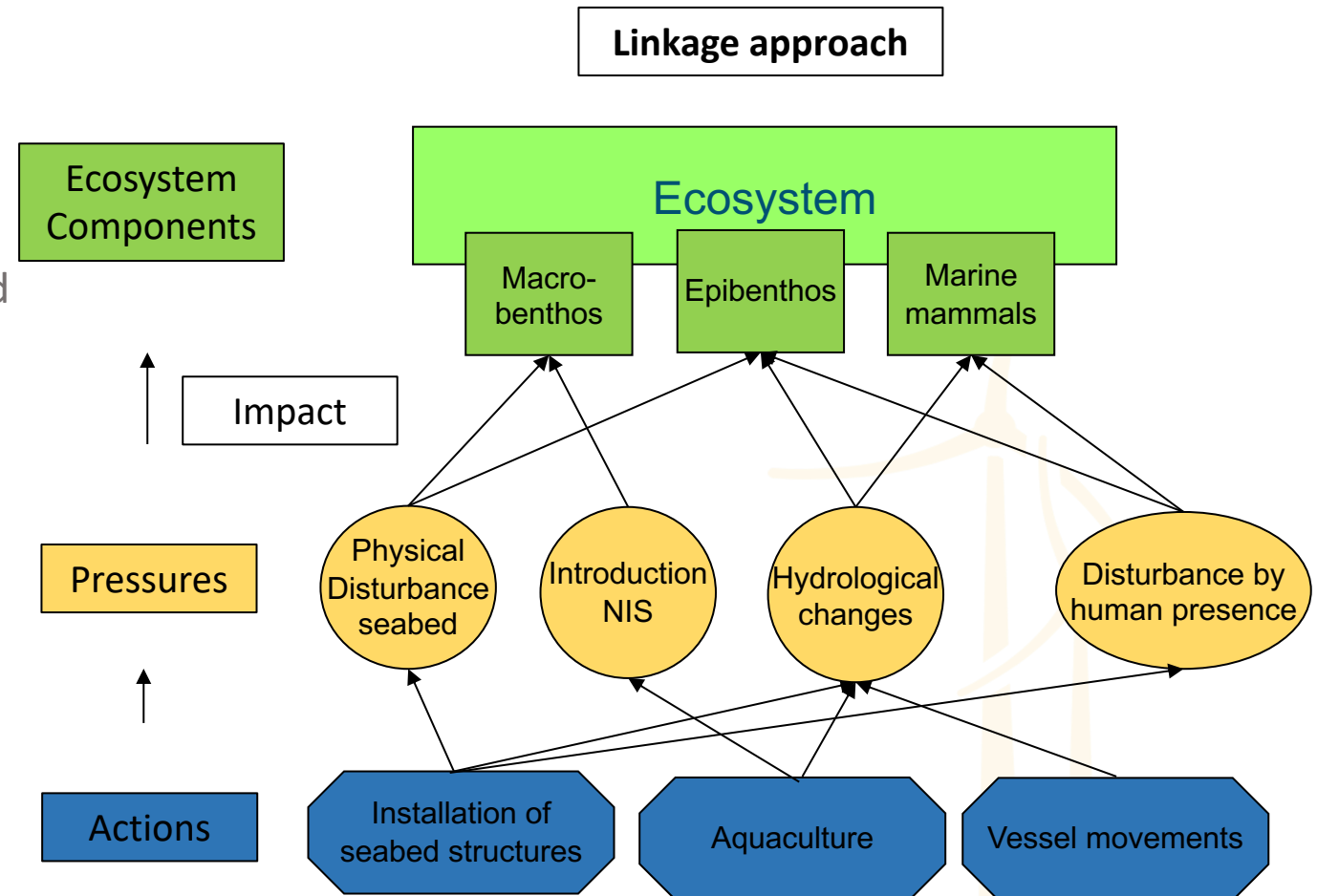
Substances, litter and energy

- Input of nutrients
- Input of organic matter
- Input of other substances (synthetic, non-synthetic, radionuclides)
- Input of litter
- Input of anthropogenic sound
- Input of energy (electromagnetic fields, light, heat)
- Input of water (affecting salinity levels)

Implementation of the UAF

Linkage approach: linking pressures with impacts

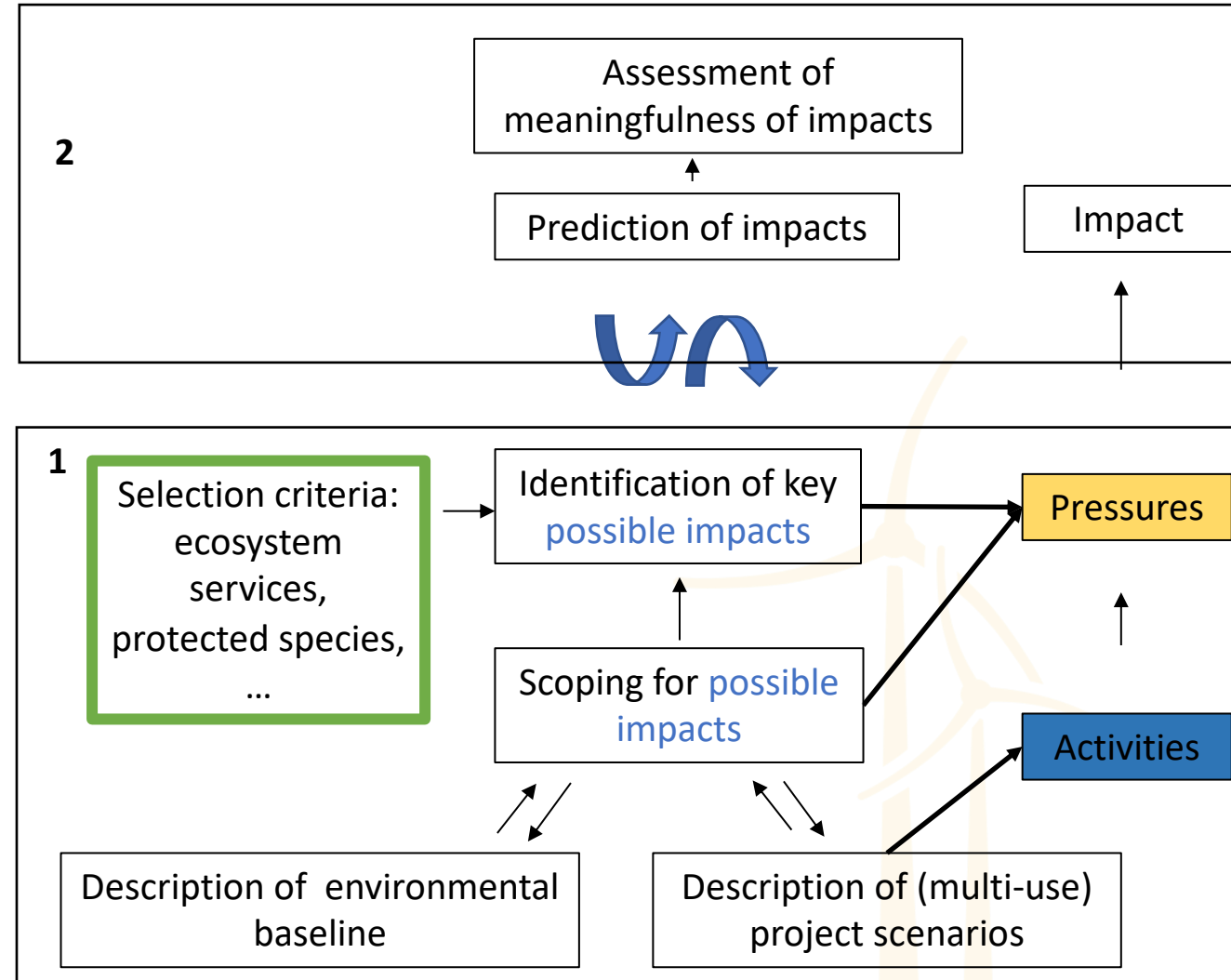
- Pressures are impacting on ecosystem components
- These ecosystem components can be linked selection criteria such as ecosystem services and protected species



Implementation of the UAF

Selection criteria

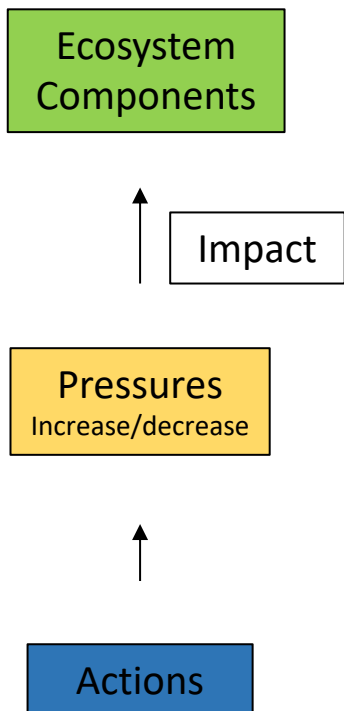
- Ecosystem Services
 - Provisioning services (eg food resources, raw material)
 - Regulating services (eg water quality, biological control)
 - Cultural services (eg cognitive benefit, leisure, non-use/iconic species)
 - Supporting services (eg nutrient cycling, nursery, biodiversity)
- Protected species
 - Informed for example by EU Habitat and Bird Directives



Examples application linkage framework

Action: installation/presence of aquaculture structures

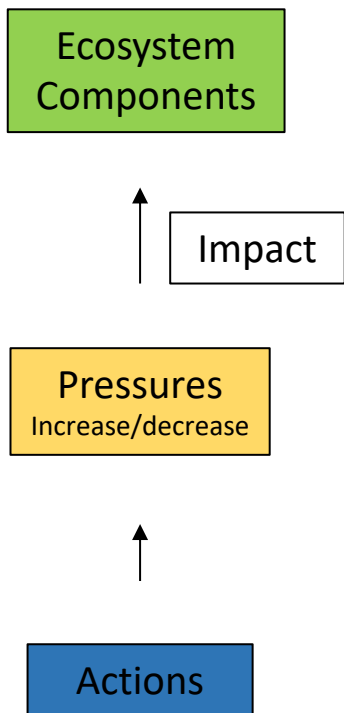
Pressure: increase in hard substrates



Examples application linkage framework

Action: Introduction of target species

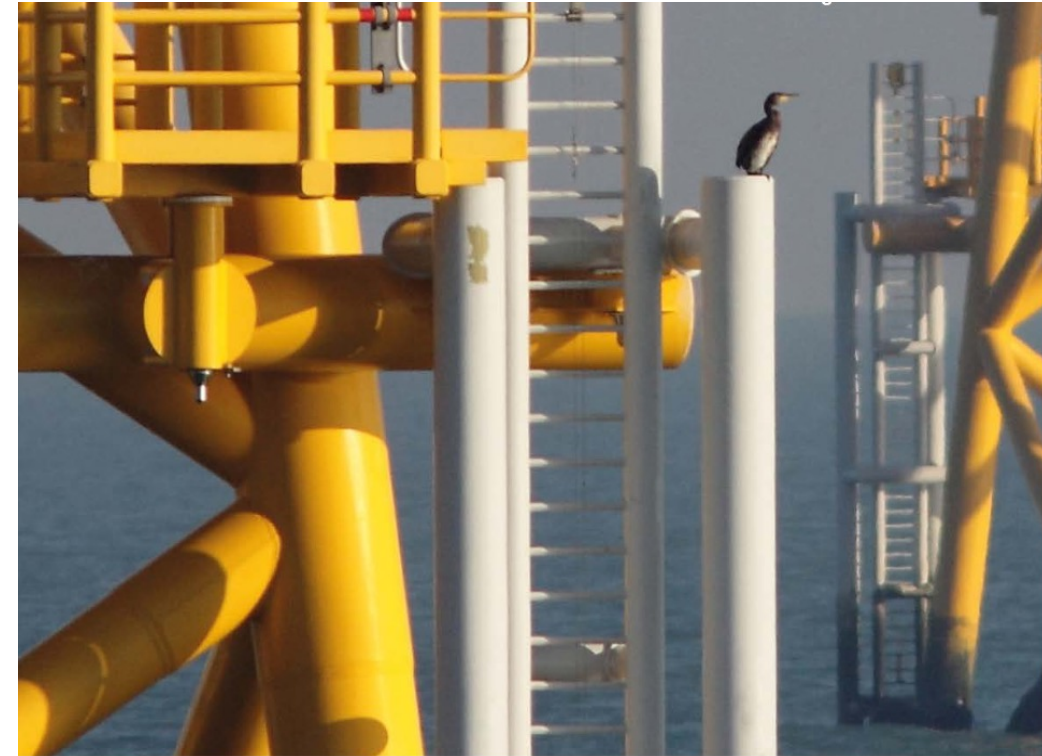
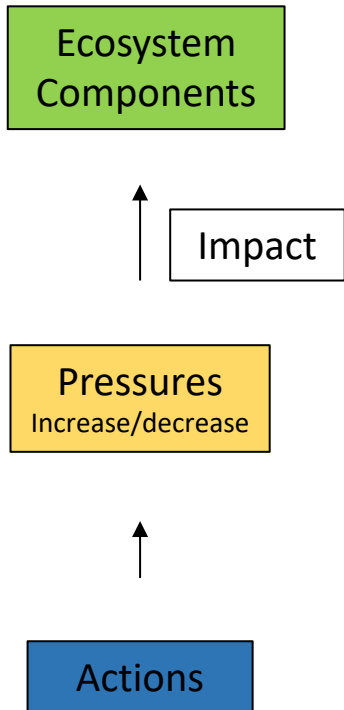
Pressure: introduction of non-indigenous species



Examples application linkage framework

Action: Aquaculture structures in offshore wind farms

Pressure: entanglement of birds/marine mammals



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