

# Parallel Session E: Valuation and Compensation of Ecosystem Services

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**Definition:** functions and processes through which ecosystems, and the species that they support, sustain and fulfil human life.

**Benefits:** dependent on well-functioning ecosystems and ecosystem services.

**Final services:** direct benefits to human societies

**Intermediate services:** vital importance for the final services and human benefit

Intermediate services →	Final services →	Goods/benefits
Nutrient cycling Primary production Water cycling Habitat maintenance Biodiversity maintenance	Fish/shellfish Water quality Wild species diversity Raw materials Climate regulation	Energy Food Recreation Tourism Education Aesthetic/Inspiration Existence
Adapted from MTT Agrifood Finland		

# Ecosystem Services

- **Socio-economic assessments:**
  - Need to distinguish between ecosystem services and benefits.
  - Ecosystem services can be seen as the link between ecosystems and things that humans benefit from.
  - Ecosystem services are not the benefits themselves.
  - Ecosystem processes and functions only become services if there are humans that (directly or indirectly) benefit from them.
  - Understand synergies between ecosystem services, i.e.  
*Falkenberg et al., 2013. Disrupting the effects of synergies between stressors: improved water quality dampens the effects of future CO2 on a marine habitat. J. Applied Ecology*

# Main SUBMARINER Findings

**Valuation and Compensation of Ecosystem Services:** recurring cross-cutting issue for reed, mussels, micro- and macroalgae applications and (to a lesser extent) for sustainable fish aquaculture.

## Issues

- Clean beaches, tourism,
- Mussel, macroalgae and reed harvesting and cultivation may offer local solutions to combat eutrophication through nutrient harvesting and closing nutrient cycle within fish aquaculture;
- Mussel and algae cultivations enhance local biodiversity and coastal protection;
- Mussel meal may become an environmentally sustainable alternative source of feed stuff for aquaculture, replacing fish meal;
- Mussels and algae as resource for organic fertilisers;

# Main SUBMARINER Findings

## But ...

- Essential gaps in knowledge on environmental impacts;
- Socio-economic benefits difficult to value, no agreed / standard approach for valuation and compensation of ecosystem services;

## Opportunities ...

- Growing political will in EU and BSR to combat eutrophication and also consider non-point sources nutrient removal measures;
- Growing recognition at EU, BSR and National levels for need to establish a common framework for valuation of ecosystem services;
  - Common International Classification of Ecosystem Services, CICES Initiative, EEA
  - Mapping and Assessment of Ecosystems and their Services, MAES DG Environment
  - Nordic Council of Ministers, HELCOM, UNEP Workshop on Economic Valuation

- **PART 1: Policy Objectives & Instruments**
  - **Wera Leujak, German Federal Environment Agency**
    - *Should we compensate for ecosystem services? The policy perspective on SUBMARINER "New Marine Uses"*
  - **Ing-Marie Gren, Swedish University of Agricultural Sciences**
    - *Policies for ecosystem services in the Baltic Sea*
  - **DISCUSSION**
- **PART 2: Case Studies**
  - **Matilda Gradin, Trelleborg Municipality, Sweden**
    - *A municipal approach on counteracting Baltic sea eutrophication and producing clean energy – Wetlands, Algae and Biogas case study in Trelleborg*
  - **Nardine Stybel, EUCC-D, Coastal Union of Germany**
    - *Mussel cultivation as a nutrient reduction measure and linkages to water quality and socio-economic aspects*
  - **DISCUSSION**
- **Session wrap up, summary of key feedback from session**

- **Valuation and Compensation of Ecosystem Services**
  - **Objective:** to develop an accepted approach to valuation of ecosystem services, propose appropriate compensation mechanisms for the provision of ecosystem services by new marine uses in BSR
  - **Network Coordinators:** Swedish Agency for Marine and Water Management (SWAM), Maritime Institute in Gdansk (MIG) and Swedish Agricultural Board
  - **Important actions:**
    - Assess the applicability of new marine uses on ecosystem services for different sub-regions of the BSR;
    - Proactively liaise and inform EU, HELCOM and relevant BSR Priority Areas of SUBMARINER initiatives;
    - Develop a practical BSR-wide methodology for valuation of ecosystem services as the basis for ecosystem services compensation schemes;
    - Develop recommendations and proposals for establishment of ecosystem service compensation schemes
    - Generate life cycle assessments and techno-economic models ... to critically examine costs and benefits

# Actors and Opportunities

- **Actors:**
  - Public / private environmental & economic research institutions
  - Relevant intermediary bodies
- **Other Relevant Strategic Actions:**
  - Data sets of Baltic Sea resources
  - Environmental impacts on water quality and habitats
  - Pilots sites for empirical research
  - Create better legal and regulatory conditions