

The Copernicus Marine Environment Monitoring Service as a platform to map marine ecosystem services: a Lithuanian case study

Miguel Inácio*, Marius Kalinauskas, Katarzyna Miksa, Eduardo Gomes, and Paulo Pereira

Mykolas Romeris University, Environmental Management Center (Lithuania)

*rinacio.miguel@gmail.com

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Kuriame
Lietuvos ateitį
2014–2020 metų
Europos Sąjungos
fondų investicijų
veiksmų programa



Research
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Lithuania

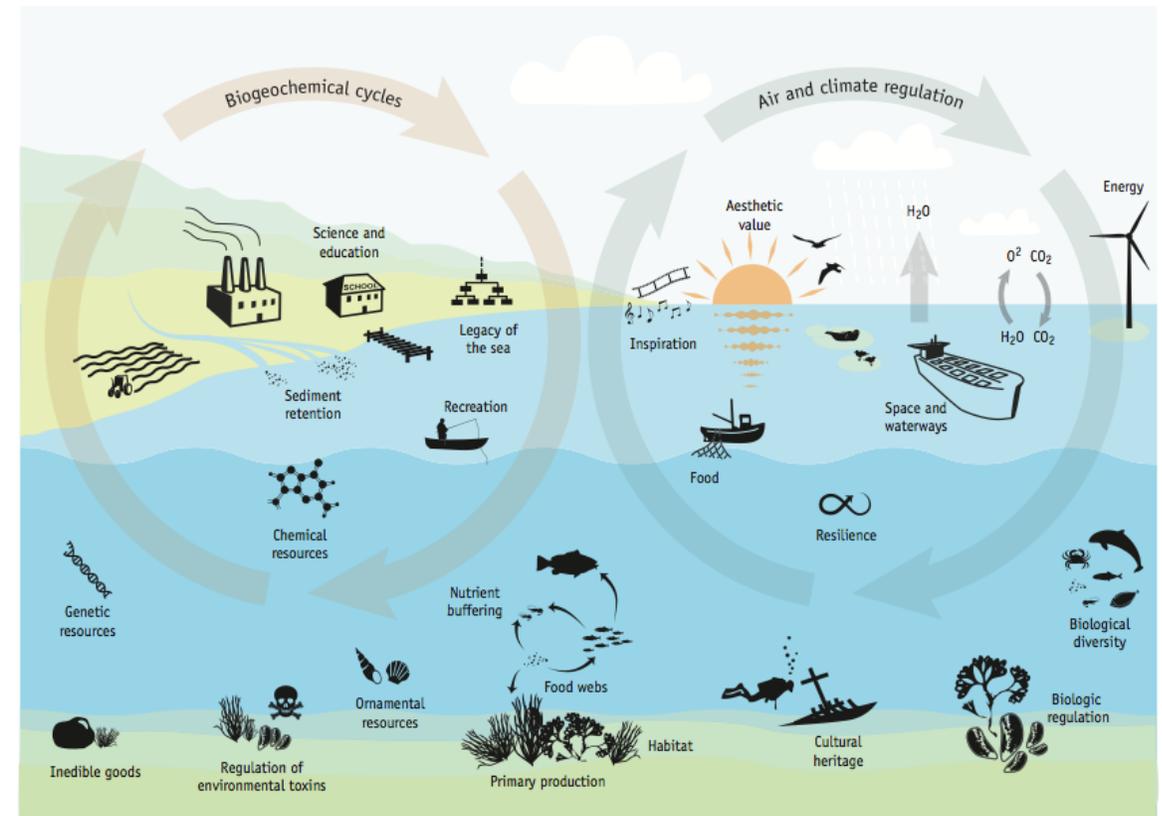
Lithuanian National Ecosystem Services Assessment and Mapping (LINESAM)

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Background information

What are ecosystem services and why is necessary to assess and map them?

- **Ecosystem services (ES)** are described as the **benefits people obtain from the environment** (Millennium Ecosystem Assessment, 2005)
- Coastal and marine ecosystems are one of the most important providers of ES, contributing to human wellbeing on a **regional, national, international and global scale**
- However, these areas are also among the **most fustigated by anthropogenic impacts**
- **Assessing and mapping ES** can contribute to **highlight the importance of coastal and marine ecosystems** and to support the achievement of environmental policies (WFD, MSFD, MSFD)



Challenges of mapping marine ES

- **ES research has grown exponentially** in the last decades. However, **there is a significant gap between land and marine realms**
- While one of the objectives is to **reduce this gap by assessing and mapping marine ES**; most scholars, planners, stakeholders and decision makers still face **various challenges** (e.g. Townsend et al. 2018, Liqueette et al. 2013):
 - Lack of **sufficient understanding** on the ecological processes and functions in the marine environment, leading to the **provision of ES**
 - **Lack of understanding** on the **trade-offs and synergies** between ES in the marine environment
 - **Lack of spatio-temporal data availability**
(especially regulating & maintenance ES)



Copernicus
Marine Service

The Copernicus Marine Environment Monitoring Service

ACCESS YOUR OCEAN INFORMATION

GETTING STARTED →

OCEAN PRODUCTS

Ocean product catalogue, to download or visualize data across nearly 15 variables, including hindcast, current and forecast data.

DATA →

OCEAN MONITORING INDICATORS

Essential variables monitoring the health of the ocean

TRENDS →

OCEAN STATE REPORT

Extensive annual analysis on the state of the ocean over nearly 20 years and severe/notable annual events

EXPERTISE →

2020 20 MAR.

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Search by keyword

Found 171 ocean products matching your criteria. [Export results](#)

REGIONAL DOMAIN: All areas

PARAMETERS: Temperature, Salinity, Sea Surface Height, Current Velocity, Mixed Layer Thickness, Sea Ice, Wind, Plankton, Oxygen, Nutrients, Carbon

TEMPORAL COVERAGE: From 1992-01-01 To 2020-05-14

PRODUCT WITH DEPTH LEVEL:

Reset Search Filters

GLOBAL_ANALYSIS_FORECAST_PHY_001_024	
GLOBAL OCEAN 1/12° PHYSICS ANALYSIS AND FORECAST UPDATED DAILY	
MODEL	GLO
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FORECAST UPDATED DAILY	
	GLO

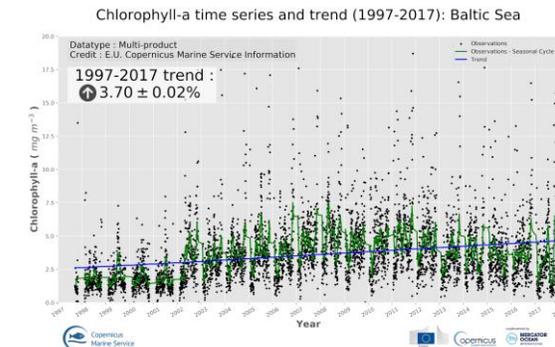
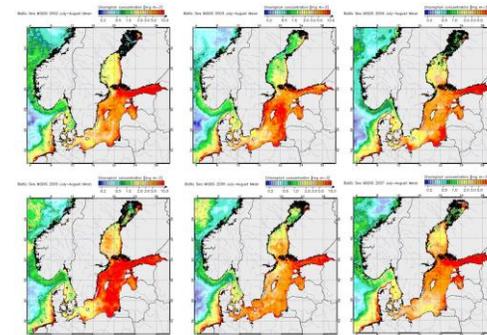
Ecosystem Services ←

Indicators ←

Proxies ←

e.g Maintenance of nursery conditions

e.g Productivity



Application of CMES to map ES

Lithuanian National Ecosystem Services Assessment and Mapping

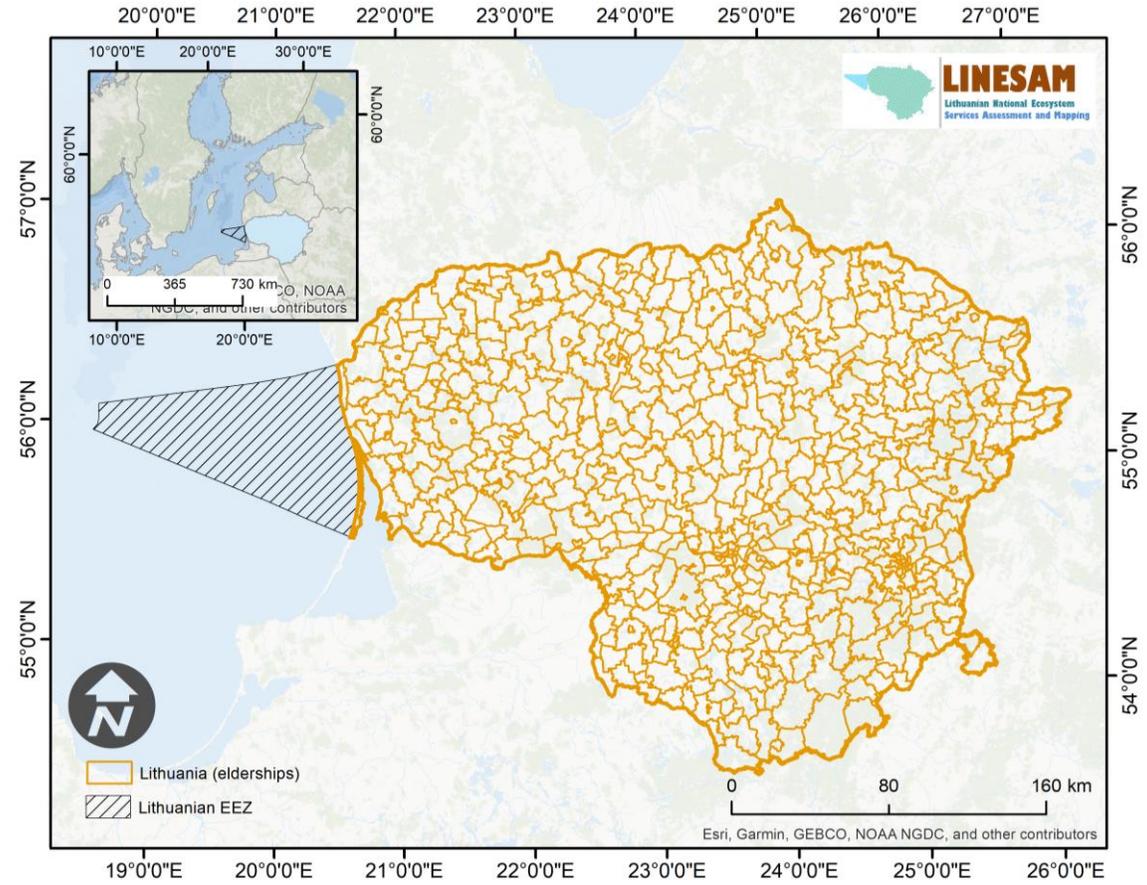


LINESAM

Lithuanian National Ecosystem Services Assessment and Mapping

Aim: assess and map ES in Lithuania, inserted in the Mapping and Assessment of Ecosystems and Their Services (MAES) EU project

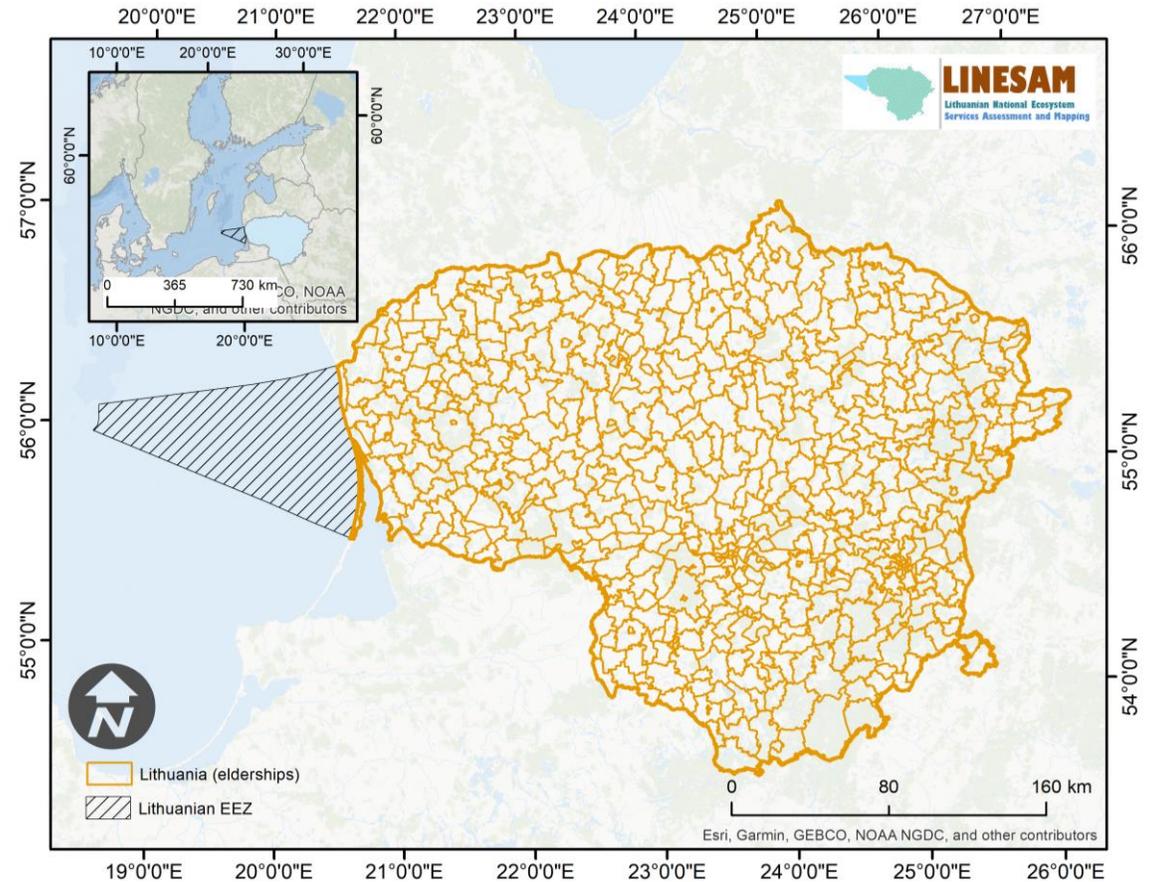
Terrestrial and Marine



Study Area: Lithuanian Exclusive Economic Zone (EEZ)

Lithuanian EEZ:

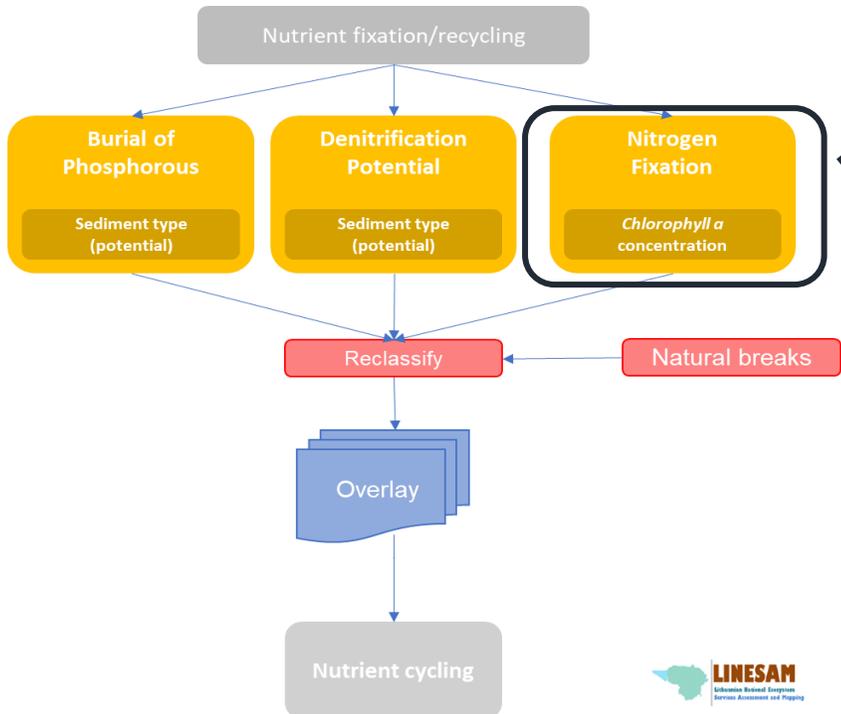
- 4560 km²
- 90 km coastline
- Average depth of 51 meters
- 1 port, 3 small harbours
- Multiple protection levels (Natura 2000, HELCOM, etc)



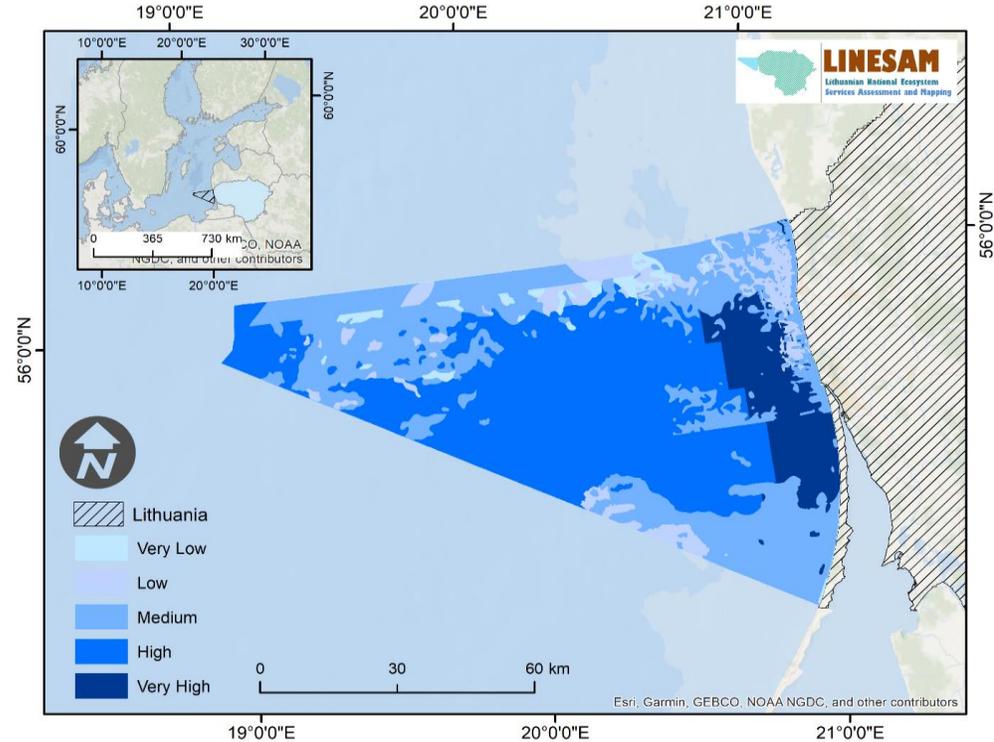
Methodological approach: Mapping Marine ES (example)

Regulating & Maintenance ES

Nutrient cycling



Marine Copernicus, 2019. Baltic Sea Biogeochemistry Reanalysis (BALTICSEA_REANALYSIS_BIO_003_012) (marine.copernicus.eu/)



Summary

The role of CMES as a platform to map and assess marine ES?

- **The CMES**, bridges two gaps in relation to mapping and assessing marine ES:
 - **Provides data for different spatial and temporal scales**
 - **Is a scientifically reliable and sound data source**
- It allows users to **get processed model results** and applied them into their ES models
- Assessment and mapping can **be done in a quantitative way**, which is majorly lacking in the marine ES realm
- Utilizing scientifically sound data, **increases the acceptance and relevance** of mapping results **by stakeholders and decision-makers**

Thank you!

For further questions
rinacio.miguel@gmail.com