PhD course on Spatial Decision Support Systems

Deliverable 7.3

BASMATI

Baltic Sea Maritime Spatial Planning for Sustainable Ecosystem Services

BONUS BASMATI
Deliverable 7.3: PhD course on Spatial Decision Support Systems
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Contents

BONUS call 2015:

Blue Baltic

Project coordinator:

Henning Sten Hansen, Aalborg University, Denmark

Project partners:

Aalborg University, Denmark (AAU)

Aarhus University, Denmark (AU)

Finnish Geospatial Research Institute, Finland (FGI)

Latvian Institute of Aquatic Ecology, Latvia (LIAE)

Leibniz Institute for Baltic Sea Research Warnemünde, Germany (IOW)

Nordregio, Sweden (Nordregio)

University of Turku, Finland (UTU)

Duration:

3 years, 7/2017 – 6/2020

Key theme addressed:

Theme 4.3 Maritime spatial planning from local to Baltic Sea region scale

Subthemes:

Theme 2.3 Integrated approaches to coastal management and Theme 4.1 Governance structures, policy performance and policy instruments

https://www.bonusportal.org/projects/blue_baltic_2017-2020

Project abstract:

Maritime Spatial Planning (MSP) requires a spatially explicit framework for decision-making, and on that background the overall objective of BONUS BASMATI is to develop integrated and innovative solutions for MSP from the local to the Baltic Sea Region scale. This is to be realised through multi-level governance structures and interactive information technology aiming at developing an ecologically and socio-economically sound network of protected marine areas covering the Baltic Sea. Based on the results of former MSP projects, the BONUS BASMATI project sets out to analyse governance systems and their information needs regarding MSP in the Baltic Sea region in order to develop an operational, transnational model for MSP, while maintaining compliance with existing governance systems. It also develops methods and tools for assessments of different plan-proposals, while including spatially explicit pressures and effects on maritime ecosystem services in order to create the Baltic Explorer, which is a spatial decision support system (SDSS) for the Baltic Sea region to facilitate broad access to information. During the project running until 2020, new data will be produced and tested in assessments corresponding to policy goals. The data will support the combined analysis of the three elements of the concept of ecosystem services: the capacity, flow and benefit of provisioning, regulating and cultural services. A central aim of the project is to facilitate cross-border collaboration, and the project is carried out in close cooperation with relevant stakeholders in the BSR. The impact of the project will be facilitated and assessed in transnational case studies, where integrated solutions are required. The local scale will consist of case study areas in the South-West Baltic, the Latvian territorial and EEZ waters including open part of the Baltic Sea and the Gulf of Riga, and across the region, a pan-Baltic case study will be performed.

Report Summary

This report documents the first of two BONUS BASMATI PhD courses, arranged by Aalborg University (AAU) and Leibniz Institute for Baltic Sea Research Warnemünde (IOW) in Copenhagen in August 2018.

1 Course description and contents

1.1 Aims of the course

Maritime Spatial Planning is a complicated process balancing different uses of the sea without making severe impacts on the environment.

The aim of this PhD course was to introduce the PhD students to various methodologies for spatial decisions support, to give them an overview of existing systems, and to discuss relevant evaluation criteria and decision alternatives in the context of maritime spatial planning.

The PhD course was closely related to the BONUS BASMATI research project, and included experiences and preliminary results from the project.

1.2 Course topics

- Introduction to spatial decision support systems
- Evaluation criteria and decision alternatives
- Data handling and quality assessment
- Weighting methods
- Sensitivity analysis in multi-criteria decision making
- Location and allocation problems using multiple criteria analysis
- Collaborative decision making
- Knowledge about appropriate software
- The role of decision support systems in maritime spatial planning
- Cumulative impact assessment
- Case studies – feedback on students work

2 Course arrangement

2.1 Basic information

Organizers: Prof. Henning Sten Hansen (AAU) & Senior researcher Kerstin Schiele (IOW)
Course extent: 5 ECTS
Time: 20 - 22 August 2018
Place: Aalborg University Copenhagen, A.C. Meyers Vænge 15, København,
Participants: 8 PhD students (from Denmark, Finland, Germany, Latvia and the UK)

2.2 Student assignments

Before the course each PhD student delivered a description of their PhD work and scientific reflections on their potential use of spatial decision support systems (max 2 A4 pages).

After the course the PhD students submitted a draft paper (4-6 pages) on their own use of spatial decision support systems.

2.3 Course programme

BONUS BASMATI PhD course:
Spatial Decision Support Systems in Maritime Spatial Planning
Aalborg University, 20th – 22nd August 2018

Venue: A. C. Meyers Vaenge 15, Copenhagen, room 2.1.042

Teachers: Prof. Henning Sten Hansen (AAU), Associate prof. Lise Schrøder (AAU), Associate prof. Carsten Kessler (AAU), Associate prof. Jamal Jokar (AAU, research assoc. Malena Ripken (COAST), Dr. Kerstin Schiele (IOW)

Day 1 – Monday 20th: Decision Making

9.00   Coffee and registration
9.30   Welcome and presentation of participants
10.00 Principles in decision making (Henning Sten Hansen)
10.30 Coffee break
11.00 Visualisation in Decision Making (Lise Schrøder)
12.30 Lunch break
13.30 Public Participation GIS (Carsten Kessler)
15.00 Coffee break
15.30 Data Quality and Uncertainty (Jamal Jokar)
16.30 Introduction to Map Algebra (Carsten Kessler)
17.00 End of day 1

Dinner in town at own expense will be arranged

Day 2 – Tuesday 21st: Decision Making Systems

9.00   Typology of Decision Making Systems (Jamal Jokar)
9.30   Multi-criteria Analysis (Jamal Jokar)
10.30 Coffee break
11.00 Normalisation and Weighting Methods (Carsten Kessler)
12.30 Lunch break
13.30 Sensitivity analysis (Carsten Kessler)
14.00 Exercises (Carsten Kessler)
15.00 Coffee break
15.30 Exercises continued (Jamal Jokar)
17.00 End of day 2

Day 3 – Wednesday 22nd: Decision Support in Maritime Spatial Planning

9.00   Cumulative Impact Assessments (Henning Sten Hansen)
10.00 Introduction to exercises (Lise Schrøder)
10.30 Coffee break
11.00 Exercises (Lise Schrøder / Henning Sten Hansen)
12.00 Lunch break
13.00 Serious Gaming in Stakeholder Involvement (Malena Ripken)
13.45 Decision making in German MSP (Kerstin Schiele)
14.30 Guidelines on how to proceed writing the draft paper
15.00 Coffee and goodbye

2.4   About the teachers

Henning Sten Hansen, Professor (AAU), coordinator of BONUS BASMATI
Research experience: Geospatial & environmental modelling, maritime spatial planning, cumulative impact assessment

Lise Schrøder, Assoc. prof, co-coordinator of BONUS BASMATI
Research experience: Geovisualisation, maritime spatial planning, stakeholder involvement

Kerstin Schiele, Senior researcher (IOW), leader of WP3 in BONUS BASMATI
Research experience: Maritime environment, ecosystem services, maritime spatial planning

Carsten Kessler, Assoc. prof. (AAU)
Research Experience: GI science, geospatial modelling, public participation

Jamal Jokar, Assoc. prof. (AAU)
Research experience: Geospatial analysis & modelling, remote sensing

Malena Ripken, Researcher, Oldenburg University
Research experience: Maritime spatial planning, coastal management, stakeholder involvement

2.5   Photographs from the course

Photo credits: Henning Sten Hansen