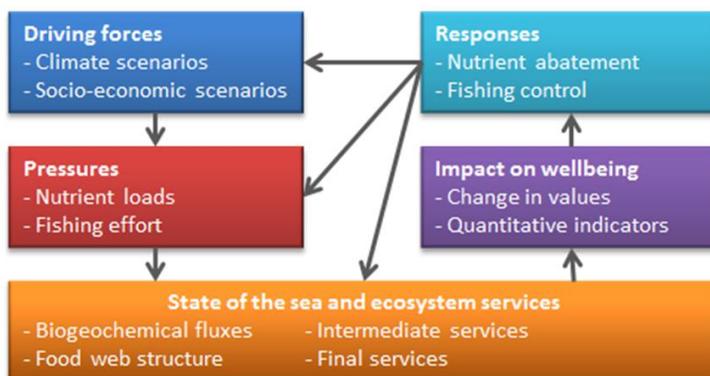


BONUS BALTICAPP: Publishable summary of the 1st periodic report

The Baltic Sea serves as a precious source of welfare. On the other hand, the sea is also vulnerable to polluting and consumptive uses. Looking backwards some decades, the provision of many important ecosystem services (such as opportunities for recreation and food fit for consumption) have reduced due to human induced pressures, such as nutrient loads. In future, it may become even more difficult to control such pressures due to global socioeconomic development and changing climate.

Overall goals and expected final results of BALTICAPP

The first key task of the project is to study and identify strategies for safeguarding a sustained supply of core ecosystem services that support the sea-dependent lifestyles and wellbeing in the Baltic Sea region under alternative global climate and socio-economic developments. For this end, the project studies, as described in the picture below, the causal chain of interactions between (a) the impacts of changing climate and socio-economic trends on selected anthropogenic pressures (nutrient loading and fishing effort), (b) the impacts of these pressures on biogeochemical processes and the food web structure of the sea, (c) the impacts of these natural processes on the provision of marine ecosystem services, and eventually (d) the contribution of final ecosystem services to our wellbeing.



As the second key task, the project will pilot a mobile application that enables the end-users of the Baltic Sea ecosystem services (i.e. all us) to share spatially and temporally explicit information on the state of the Baltic Sea, and simultaneously, provides policy makers, researchers and any other interested parties valuable information about the demand and hotspot areas of cultural ecosystems services.

Work performed and main results achieved during the first project year

The first project year has proceeded as planned. The work has primarily focused on deliverables and tasks that create the basis and provide inputs for the further analysis.

- Downscaling global climate projections, based on Representative Concentration Pathways (RCPs), and global socioeconomic scenarios, based on Shared Socio-economic Pathways (SSPs), at spatially relevant scales in the Baltic Sea region have been prepared according to the plan. This work creates the basis for making projections for the pressures, nutrient loads and fishing effort, which again will be used as inputs to food web and biogeochemical models and further analysis.

- The preparations for a workshop on scenarios, organized in the beginning of the second project year on April 6-7, 2016 in Helsinki, was one of the major efforts of the first project year. BONUS BALTICAPP organized a workshop together with the BONUS Secretariat. As the first step, a questionnaire was sent to BONUS projects to find out whether they develop regional socioeconomic pathways as part of their research, and whether there is interest for exchange of ideas and collaborating. An internal workshop on scenario building was held in Stockholm in September 2015. In November 2015, the scope of the workshop was slightly revised, after the workshop was selected as the clustering event of the BONUS programme, including involvement of stakeholders. In March 2016, background material was delivered for the workshop participants outlining the basis of the SSPs and RCPs and providing quantitative drivers of socio-economic developments for the Baltic Sea countries.
- The biogeochemical and food-web models have been developed in parallel. Much effort has been paid into the compilation and pre-processing of the data (observations and estimations) relevant for building the forcing (climate, nutrients, fishing effort) used as an input to the model simulations. The coupled physical-biogeochemical model of SMHI (RCO-SCOB1) was setup for a hindcast simulation, covering the period from 1961 to 2009. The overall comparison between observations and model results suggests that the model reproduces not only the inflow events well but also the seasonal pattern of the observations, indicating that the main ecological processes are well described. A new Ecopath with Ecosim and Ecospace model for the open Baltic Sea has been implemented. The model reflects the post-regime-shift food web in the Baltic.
- The preparations for the new survey to investigate the benefits of water protection with alternative baseline projects, have proceeded as planned. A questionnaire and sampling for a new survey data have been planned to collect information of diverse benefits from the Baltic Sea to human wellbeing in Finland, Germany and Latvia. The survey questions and response scales have been tested in two focus groups of lay people in Finland and in Latvia. Also, the benefit transfer approach for using valuation results has been developed. Existing benefit functions have been adapted to include the effects of climate change.
- The national distribution of recreational benefits in the Baltic Sea regions was investigated based on a travel cost approach and earlier collected survey data about the uses of the Baltic Sea. According to the results, the annual Baltic Sea recreational benefits amount up to 15 billion EUR currently. The environmental condition (i.e. state of the sea) was found to have an important impact on overall benefits: Under improving water quality, the proportional increases in benefits ranged from 7 to 18% across riparian countries. The number of trips to the sea or coastline and the extent of participation varied much across riparian Baltic Sea countries. A spatially-explicit analysis of the choice of recreation destinations around the Baltic Sea coast line is under preparation. Site characteristics and travel data has been collected and calculated during the first period for all riparian countries with the exception of Russia, where data are not available.
- The mobile application design was finalized during the first project year after large number of consultations and searching for open data sources. Currently, technical implementation of the application is under way. The application will be introduced for testing to relevant stakeholders during the second project year.

For up-to-date information on BALTICAPP activities and initiatives, visit us at <http://blogs.helsinki.fi/balticapp/>

BONUS BALTICAPP project has received funding from BONUS (Art 185), funded jointly by the EU, Innovation Fund Denmark, Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning, Academy of Finland, Projektträger Jülich, and National Centre for Research and Development, Poland.