

## Review 2012–13

Start of the implementation of the joint Baltic Sea research and development programme



# BONUS

BONUS is the joint Baltic Sea research and development programme producing knowledge to support development and implementation of regulations, policies and management practices specifically tailored for the Baltic Sea region. BONUS issues calls for competitive proposals and funds projects of high excellence and relevance based on its strategic research agenda.

BONUS is funded jointly from the national research funding institutions in the eight EU member states around the Baltic Sea and the European Union's Seventh Programme for research, technological development and demonstration by a total of EUR 100 million for the years 2011–2017. The BONUS EEIG (the Secretariat) is the legal management organisation of BONUS.

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# Foreword

■ Today, we can proudly say that the Baltic Sea region is the first one, which has developed responsible, multinational and equitable research governance arrangement, particularly tailored for supporting sustainable development of the region and the sea. In the core of BONUS is the strategic research agenda which is periodically updated in order to take into account the developments in science as well as in the policy landscape. The policy landscape governing the Baltic Sea is broad and multileveled – a recent study revealed that there are over 80 relevant international, European, regional and national regulations, strategies and action plans relevant to BONUS, and they are continuously changing.

Our experience shows also that the efforts of BONUS contribute greatly to the implementation of

the HELCOM Baltic Sea Action Plan as well as to the various cross-sectoral EU policy processes such as the implementation of the EU Marine Strategy Framework Directive and other coastal and marine environmental policies and plans. We are convinced that this, and continues to be, the best way to generate top level research that is used for protecting the fragile marine environment of the Baltic Sea, and which, at the same time, can offer multitude of goods, services and jobs for the benefit of today's and tomorrow's society.

*Dr. Eugenijus Butkus*

Chair of the BONUS Steering Committee 2013/14  
Vice Rector for Research, Vilnius University  
Vilnius, 14 March 2014



## Executive summary

■ On 12 November 2012, several weeks after signing the implementation agreement between BONUS and the European Commission, the first BONUS call based on the BONUS strategic research agenda 2011–2017 was opened. A year later, seven research projects selected for funding worth EUR 26 million were officially announced in a high profile event held at the European Parliament in Brussels. Thirteen innovation projects worth a total of EUR 7 million were invited for negotiations with a view to complete all the grant agreements in early 2014.

By the end of the first full year of implementation of BONUS, the updating of the BONUS strategic research agenda was completed, just in time to serve as the basis for the BONUS calls opening in 2014. The update process began in autumn 2012 with the drafting of the 'Policy framework analysis in the fields relevant to the BONUS programme' which formed a solid basis for outlining the research needs arising from sustainability policy development of the coming decades. To date, BONUS has engaged over 800 stakeholders in inception and update activities of the strategic research agenda.

The BONUS-HELCOM stakeholder conference convened in March 2013, the BONUS co-organised 9<sup>th</sup> Baltic Sea Science Congress and the 4<sup>th</sup> BONUS Young Scientist Club meeting both took place in August 2013 and many more joint Baltic Sea research and development relevant events and developments unfolded over the year. The preannouncement of the next BONUS research call titled 'Sustainable ecosystem services' worth up to EUR 15 million ended the eventful year.

The following pages provide an overview of BONUS activity from the beginning of the implementation phase (18 October 2012) to the end of the first full year of implementation of BONUS (31 December 2013).

**The BONUS Secretariat with the representatives of the European Commission after signing the implementation agreement, 18 October 2012. From l. to r. Peter Crawley (DG Research and Innovation), Maija Sirola, Tiina Tembe, Meelis Sirendi, Kaisa Kononen, Arnoldas Milukas (DG Research and Innovation), Andris Andrusaitis.**



## An urgent need for efficient solutions to sustain the health of the Baltic Sea ecosystem

■ Despite the environmental protection efforts that stretch already across several decades, the countries surrounding the Baltic Sea have yet to find efficient solutions to sustain the health of the Baltic Sea ecosystem. Current and emerging environmental and sustainability challenges in the Baltic Sea are as many as are the related knowledge needs.

Key challenges range from ‘evaluating and developing relevant policies and collective governance’ to ‘adapting to a more sustainable way of living’; and from ‘adapting to the effects of climate change’ to ‘restoring good environmental status of the Baltic Sea and its coasts’.

Although ambitious, the vision of BONUS appears the only thinkable goal for today’s responsible society which strives to save the planet for the future generations.

In order to move towards a truly sustainable Baltic Sea region, the most cost-efficient solutions need to be known as do the political and social conditions that allow distribution of management and remedial costs in a feasible and balanced way in relation to other living costs.

There is a crying need for tools and mechanisms that support the much required change of modern lifestyles towards a more sustainable way of living.

The understanding of the linkages between the structure and functioning of the Baltic Sea ecosystem and various human activities within the Baltic Sea drainage area and coast is critical.

Critically important is also to ensure effective harnessing of the advantages of the newest technologies in order to satisfy ever increasing needs of marine and maritime information.



### **BONUS vision**

*Economically and ecologically prosperous Baltic Sea region where resources and goods are used sustainably and where the long-term management of the region is based on sound knowledge derived from multidisciplinary research.*

### **BONUS objective**

*To integrate the Baltic Sea system research into a durable, cooperative, interdisciplinary and focused multinational programme in support of the region’s sustainable development.*

PEKKA TUURI



*“At the time of pressure on public investments, BONUS is a good example of successful international research coordination and cooperation that does not limit itself just to marine and maritime issues but also covers agriculture and other human induced issues relevant to the fragile state of the Baltic Sea.”*

Lithuanian Minister of Education and Science, Mr. Dainius Pavalkis  
at the BONUS European Parliamentary event, Brussels, 26 November 2013

## BONUS generates knowledge and know-how for the benefit of sustainable Baltic Sea region

The main aim of BONUS is to respond to the unsustainable situation by generating knowledge and providing necessary know-how in support of knowledge-based governance and long-term solutions beneficial to the Baltic Sea region.

While a joint, interdisciplinary and macroregional research effort is in the core of the BONUS programme, it draws also from and complements the national research programmes of the EU member states

of Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden as well as the ninth Baltic Sea coastal state, Russia.

It is important for BONUS to continue to intensify its joint work with relevant stakeholders, including policy makers and government officials, and defining together with them knowledge needs. Equally important is for BONUS to provide continuous opportunity of participation to different end-users in identifying knowledge gaps, shaping the strategic research agenda, and this way exploiting the outcomes of the BONUS effort in full.

## BONUS members:



## HELCOM Baltic Sea Action Plan and integrated approaches of the European Union underpin BONUS

Work of BONUS is carried out, in particular, in support of the HELCOM Baltic Sea Action Plan and integrated policy approaches of the European Union, such as the Integrated Maritime Policy and its environmental pillar the Marine Strategy Framework Directive, the Water Framework Directive, and the newly issued proposal for the EU Framework Directive on Maritime Spatial Planning and Integrated Coastal Management aiming at employing an ecosystem-based approach.

## Horizon 2020

The EU's next framework programme for research and innovation, the Horizon 2020 (2014-2020), is set to generate excellence in science, create industrial leadership and tackle societal challenges. It aims at increasing the societal impact of combined research and innovation for the benefit of the European citizens. In the Baltic Sea regional scale, BONUS is a forerunner in implementing many principles of the Horizon 2020, in particular through the innovation call opened jointly with the flagship project of the EU Strategy for the Baltic Sea Region, BSR Stars.

## BONUS phases to date:

- BONUS ERA-NET (2003–2008) was a joint project by 12 research funding and coordinating agencies around the Baltic Sea set up to develop preconditions for a joint Baltic Sea research programme (i.e. BONUS).
- BONUS+ (2009–2011) tested the mechanisms of collaboration among the national funding institutions. A total of 16 projects involving over 100 research institutes and universities were funded (EUR 22 million).
- BONUS (2010–2017) was started by the BONUS member states together with the EU and launched officially in September 2010 by a co-decision of the European Parliament and the European Council. Between years 2012 and 2014 sought for are competitive, cross-disciplinary and transnational top research and innovation projects worth up to EUR 100 million.

## BONUS highlights 18 October 2012–31 December 2013:

### October 2012

The implementation agreement between the European Commission and BONUS EEIG was signed on 18 October 2012, marking the official start of the implementation of BONUS.

### November 2012

The BONUS call 2012, including both research (Viable ecosystem) and Innovation parts, was opened for competitive proposals on 12 November 2012, with a total funding available up to EUR 33 million.

### February 2013

Eighty-seven proposals requesting a total of EUR 294 million were submitted to the BONUS call 2012: Viable ecosystem by the deadline of 14 February 2013.

### March 2013

BONUS continued to promote an interactive science-policy interface and broad participation of stakeholders from relevant sectors by organising the third BONUS Forum jointly with HELCOM-BONUS stakeholder conference that explored future research needs of the Baltic Sea region.

- *The BONUS Forum convenes once a year and acts as the programme's key platform for consultations from the decision-making perspective in the process*

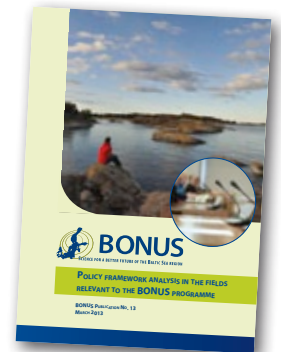
*of developing and updating the policy-driven and relevant research agenda. It forms the most important end-user group of the bespoke knowledge generated within the BONUS programme.*

The BONUS Publication No.13 'Policy framework analysis in the fields relevant to the BONUS programme' saw the daylight.

Thirty-three proposals requesting a total of EUR 15 million were submitted to the BONUS call 2012: Innovation by the deadline of 12 March 2013.

### April and May 2013

Research and innovation proposals' evaluations were completed in separate Viable ecosystem and Innovation call panels formed by international and independent evaluators. The BONUS Steering Committee confirmed for funding seven successful research projects worth EUR 26 million. From the Innovation part of the call, arranged in collaboration with the EU Strategy for the Baltic Sea Region flagship project BSR Stars, a total of 13 projects were invited for negotiations worth a total of EUR 7 million; these negotiations are envisaged to be completed in early 2014.



*"Ecosystem approach to the management of human activities manifested by the HELCOM Baltic Sea Action Plan and advocating knowledge-based management provides a strong connecting point to HELCOM and BONUS."*

Executive Secretary, Ms. Monika Stankiewicz, HELCOM, at the joint BONUS-HELCOM stakeholder conference, Helsinki, 4 March 2013



The panel discussion at the HELCOM-BONUS stakeholder conference, 4 March 2013. From l. to r. Arnoldas Milukas, Fredrik Wulff, Jesper Andersen, Raine Hermans, Anna-Stiina Heiskanen, Andrzej Cieslak, Boris Chubarenko.

### August 2013

BONUS co-organised the 9<sup>th</sup> Baltic Sea Science Congress held in Klaipeda, Lithuania and sponsored a popular public engagement themed afternoon marking the fourth meeting of the BONUS Young Scientist Club since its inception in 2009. The afternoon included a lecture by the European Commission on the topic of science communication and an interactive public engagement workshop facilitated by a professional researcher trainer. Feedback from the 50 participants attending the workshop was overwhelmingly positive demonstrating a clear demand for researcher skills' training amongst the young scientists in the Baltic Sea region.

- *The ambition of the BONUS sponsored Young Scientist Club is to promote the creation of networks of tomorrow's leading Baltic Sea scientists in the early stages of their careers.*

### September 2013

The final contributions to the update of the BONUS strategic research agenda were made at the strategic orientation workshop held in Tallinn, Estonia. In attendance were drafting team members of the agenda and other key stakeholder representatives from the scientific community, policy makers and funders.

### November 2013

The first full year of implementation of the BONUS programme was celebrated in a high profile event organised in the European Parliament in Brussels. Hosted by three European Parliament groups, the programme was laden with prestigious speakers, including the Lithuanian Minister of Education and Science, two Members of the European Parliament and four Directors from the European Commission, i.e. from the DG



From l. to r. José Palma Andrés, Carla Montesi, Minister Dainius Pavalkis, Kurt Vandenberghe, Marianne Wenning in the European Parliament.

*"The action of BONUS is quite unique: it is creating an ecosystem among all Baltic Sea states, including Russia, and their researchers, innovators and businesses in order to have an integrated ecosystems-based approach to tackling significant challenges such as the Baltic Sea's eutrophication. BONUS is cutting across scientific disciplines, economic sectors, policy agendas and national borders to keep the Baltic Sea alive."*



Director of the Environment Directorate, Mr. Kurt Vandenberghe, DG Research and Innovation, European Commission at the BONUS European Parliamentary event, Brussels, 26 November 2013

Research and Innovation, DG Environment, DG Regional Policy and DG Maritime Affairs and Fisheries.

The seven projects selected from the BONUS call 2012: Viable ecosystem to receive BONUS funding were announced officially during the European Parliamentary event (i.e. projects BAMBI, BIO-C3, BLUEPRINT, CHANGE, COCOA, INSPIRE and SOILS2SEA).



Participants of the 'Engaging researcher' workshop engrossed in group activities.

*"It made me realise that I have done public engagement already before and won't be afraid of trying again!" "Useful activities, interesting topic, public engagement is something I like and would like to be better in ..."*

Participant comments of the 'Engaging researcher' workshop, Klaipeda, 29 August 2013



December 2013

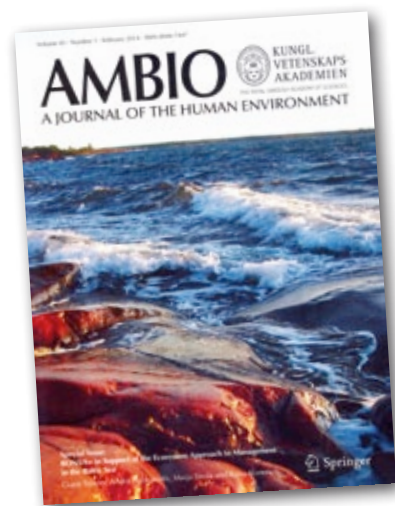
The BONUS strategic research agenda update was completed in the last days of the year and published in the first days of 2014. With it the focus of the agenda deepened, underlining further the theme of sustainability of ecosystem services (i.e. a continuation from the focus on the catchment-coast-sea continuum that was included in the agenda in 2011, and the solely marine environment based first BONUS science plan published in 2006). To date over 800 stakeholders in the region have contributed to the development and update of the BONUS strategic research agenda.

### Stakeholder events

A strong BONUS contributions in close to 30 cross-sectoral stakeholder events such as the annual forums of the EU Strategy for the Baltic Sea Region and the Baltic Development Forum, and the EU-Russia collaboration, as well as the Russian Baltic Sea Day, the SEAS-ERA Strategic Forum, the Baltic Sea Summit, the European Maritime Day and the Baltic Sea Parliamentary Congress, among other, increased programme's visibility and progress towards sustainable cross-border and cross-sectoral public research programme coordination and integration.

### Synthesis of the BONUS+ projects in AMBIO

BONUS guest-edited a special issue of AMBIO journal titled 'BONUS+ in Support of the Ecosystem Approach to Management in the Baltic Sea'. This was completed in late 2013 with a view to publish the entire issue in open access in Volume 43, Issue 1 of AMBIO (out in early 2014). A synthesis article outlined the key outcomes of the 16 projects funded in 2009-2011 and their policy relevance by using as a case study and a reflection point the HELCOM Baltic Sea Action Plan. Through the consolidated effort, the BONUS+ projects contributed to 37 EC consultations, served as members or observers in 570 occasions on stakeholder and scientific committees, contributed to modification of 50 policy documents and action plans and contributed to development, implementation and evaluation of efficacy of over 150 public policies and governance plans.



The plenary of the 4<sup>th</sup> annual forum of the EU Strategy for the Baltic Sea Region, 11 November 2013.







## BONUS communications tools in record highs

A steady increase of the website traffic continued to the implementation phase: Between 18 October 2012 and 31 December 2013, a record high of 52,769 visits (38,364 in year 2013) and 26,453 unique visitors (19,516 in year 2013) were registered.

- *The BONUS website is the leading communications tool of BONUS featuring dedicated areas for call information, news, events, science community, policy makers, SMEs as well as a repository of all BONUS publications and other BONUS materials. [www.bonusportal.org](http://www.bonusportal.org)*

The number of recipients of the BONUS e-bulletin reached its peak to date with 2900 recipients on the

mailing list. Roughly a quarter of recipients are regular followers of the BONUS news and updates.

- *The BONUS e-bulletin provides latest news and events several times per month by email to subscribers [www.bonusportal.org/bulletin](http://www.bonusportal.org/bulletin)*

The BONUS in Brief newsletter was published three times during this period online and in hard copy, with each issue posted to a mailing list containing over 500 recipients and further several hundred copies upon requests made and through various BONUS exhibitions.

- *BONUS in Brief is published to keep the BONUS community, including partners and supporters, informed about current views and news about BONUS activities and accomplishments. [www.bonusportal.org/inbrief](http://www.bonusportal.org/inbrief)*



## BONUS call 2012

■ A total of EUR 33 million of funding was provided for the 20 successful projects of the BONUS call 2012. This call ran from 12 November 2012 until the spring of 2013: the Viable ecosystem part closed on 14 February and the Innovation part on 12 March.

### Viable ecosystem projects

Seven projects were selected (presented below on pages 10–13) to receive funding of ca. EUR 4 million each, totaling over EUR 26 million. The main objective of the call was to attain the necessary scientific knowledge on achieving and maintaining the good environmental status of the Baltic Sea, support relevant policies and decision making. When compared to the previous BONUS call (BONUS+), the difference this time is that the entire catchment-coast-sea continuum is considered in the strategic objectives.

A total of ten research themes from the BONUS strategic research agenda 2011–2017 were opened for the call and the successful projects decided according to one ranking list based on scientific excellence, implementation and impact only. The seven projects addressed six of these

themes as key themes which indicates that the Baltic Sea region hosts top level research in many different fields. All in all, 67 organisations participate in the projects and represent all eight BONUS countries as well as Russia and the Netherlands.

### Innovation projects

A total of EUR 15 million was requested by the proposals for future Baltic Sea innovation projects of the BONUS call 2012 arranged in collaboration with the EU Strategy for the Baltic Sea Region flagship project BSR Stars. After an intensive evaluation process that applied the same principles as was used in the research part of the call, a total of 13 innovation projects were selected for negotiations for BONUS grant agreement. The total funding provided for the projects is set up to EUR 7 million. The negotiations will be completed in early 2014 with these projects running a maximum of three years starting from the summer 2014. These projects will deliver specific technological solutions that will facilitate also the achievement of the goals of various relevant policies.



### BAMBI – Baltic Sea marine biodiversity

Addressing the potential of adaptation to climate change  
EUR 3.9 million, duration 4 years

**In the face of the rapid, ongoing environmental changes of the Baltic Sea, the survival of marine species is challenged.**

The overall objectives of the project BAMBI are to answer urgent questions, such as: Will species and ecosystems of marine origin have the potential to adapt and survive the coming 50-100 years inside the Baltic Sea? If so, what

is needed in terms of population sizes, population connectivity and genetic variation? And, what governance structures, policy instruments and management measures can help provide the required population structures and traits? BAMBI aims to introduce new types of scientific data with high relevance for ecosystem-based management of

biodiversity under environmental change, and use these results to outline new governance and policy principles. One additional important issue will be to identify governance systems and institutions that are important for the transfer of scientific knowledge on biological diversity into functional management policies and principles.

#### Project partners

- **Sweden:** University of Gothenburg (coordinating partner, coordinator Kerstin Johannesson); Luleå University of Technology; Stockholm University
- **Estonia:** Estonian Marine Institute, University of Tartu
- **Germany:** Helmholtz Centre for Ocean Research Kiel
- **Finland:** University of Turku

**Policy links:** HELCOM Baltic Sea Action Plan, Marine Strategy Framework Directive and maritime spatial planning in the Baltic Sea.

Further information: [www.bonusportal.org/bambi](http://www.bonusportal.org/bambi)



## BIO-C3 – Biodiversity changes

Investigating causes, consequences and management implications  
EUR 3.7 million, duration 3.5 years

**As a relatively well-studied semi-enclosed ocean basin, the Baltic Sea plays a special role for biodiversity research.** BIO-C3 will investigate causes and consequences of changes in biodiversity, emphasising effects on ecosystem function and implications for environmental management. Applying a novel, integrated approach, biodiversity is addressed on genotype, species,

population, trait, habitat and ecosystem levels. On the one hand, the existing biodiversity data and data on potential drivers are collected and synthesised, while on the other, additional research efforts will close important knowledge gaps in several key areas, for example, related to adaptation of organisms to climate change and food-web alterations due to species invasions.

### Project partners

- **Germany:** Helmholtz Centre for Ocean Research Kiel (coordinating partner, coordinator Thorsten Reusch); *Institute for Hydrobiology and Fisheries Science, University of Hamburg*; *Thünen Institute for Baltic Sea Fisheries, Rostock*
- **Denmark:** *National Institute of Aquatic Resources, Technical University of Denmark, Kongens Lyngby*; *DHI, Hørsholm*
- **Estonia:** *Estonian Marine Institute, University of Tartu*
- **Finland:** *Finnish Environment Institute, Helsinki*; *Åbo Akademi University, Turku*
- **Lithuania:** *Marine Science and Technology Center, Klaipėda University*
- **Poland:** *National Marine Fisheries Research Institute, Gdynia*
- **Sweden:** *Stockholm University*; *University of Gothenburg*; *Swedish Meteorological and Hydrological Institute, Norrköping*

**Policy links:** HELCOM Baltic Sea Action Plan, EU Marine Strategy Framework Directive, EU Water Framework Directive, Common Fisheries Policy and other EU and regional policies

Further information: [www.bonusportal.org/bioc3](http://www.bonusportal.org/bioc3)



## BLUEPRINT – Biological lenses using gene prints

Developing a genetic tool for environmental monitoring in the Baltic Sea  
EUR 3.9 million, duration 4 years

**With the exception of filamentous cyanobacteria, microbes and the fundamental processes they are driving are generally ignored as environmental indicators in the Baltic Sea.** The goal of the BLUEPRINT project is to demonstrate the functionality of a publicly available resource with the capacity to deduce environmental status and dominant

biogeochemical pathways from the biodiversity and genetic functional profiles of microbes, *the blueprint*, in a seawater sample. This resource will be established as an operational virtual Blueprint Competence Centre, where blueprints are generated and analysed, followed by an evaluation of the environmental status. Finally, the genomic information will

be used to validate and improve biogeochemical models of the Baltic Sea. The project includes small- and large-scale experimental approaches, cruises, genomic analyses and modelling, and discussion forums with stakeholders, end-users, and experts involved in monitoring and environmental legislation.

### Project partners

- **Denmark:** University of Copenhagen, Helsingør (coordinating partner, coordinator Lasse Riemann)
- **Estonia:** *Institute of Technology, University of Tartu*
- **Finland:** *University of Helsinki*
- **Germany:** *Leibniz Institute for Baltic Sea Research Warnemünde, Rostock*
- **Sweden:** *KTH Royal Institute of Technology, Stockholm*; *Linnaeus University, Kalmar*; *Stockholm University*

**Policy links:** HELCOM Baltic Sea Action Plan, EU Marine Strategy Framework Directive

Further information: [www.bonusportal.org/blueprint](http://www.bonusportal.org/blueprint)



## CHANGE – Changing antifouling practices for leisure boats in the Baltic Sea

EUR 3.9 million, duration: 4 years

**A staggering 3.5 million leisure boats have their homeports in the Baltic Sea. Eighty per cent of these boats have paints containing toxic heavy metals and organic booster biocides that prevent growth of benthic organisms, so called biofouling, on their hulls.** These toxins pose a serious threat to the sensitive coastal waters of the Baltic Sea.

Highly promising solutions, that in an environmentally safe way combat biofouling, are emerging. However, for these to make it into eco-innovations, changes are needed on all levels of society – from the outline of the regulatory framework to changes in market actors including leisure boating cultures and institutions. The CHANGE project brings together

scientists from natural science, business administration and environmental law to develop entirely new ways of solving an environmental problem. The CHANGE project sets out to map changes needed to reduce the supply of toxic antifouling compounds to the Baltic Sea environment and provide new powerful instruments for Baltic Sea policies.

### Project partners

- **Sweden:** SP Technical Research Institute of Sweden, Borås (Coordinating partner, coordinator Mia Dahlström); *SIK - the Swedish Institute for Food and Biotechnology, Gothenburg*; *Stockholm University*; *University of Gothenburg*
- **Denmark:** *University of Copenhagen, Frederiksberg*
- **Finland:** *Aalto University, Espoo*
- **Germany:** *Laboratory for Freshwater, Marine Research and Comparative Pathology, Hamburg*

**Policy links:** HELCOM Baltic Sea Action Plan, EU Marine Strategy Framework Directive, EU Water Framework Directive

Further information: [www.bonusportal.org/change](http://www.bonusportal.org/change)



## COCOA – Nutrient cocktails in coastal zones

Improving understanding of the transformation and retention of nutrients and organic matter in the coastal zone  
EUR 4 million, duration: 4 years

**Eutrophication caused by excessive discharges of nutrients from land is the largest ecological problem in the Baltic Sea.** Consequences are large blooms of noxious cyanobacteria in summer and an unprecedented large dead zone extending more than 60,000 km<sup>2</sup>, equivalent to the size of Latvia. Nutrient reductions are required to reestablish a healthy Baltic Sea, as acknowledged in the Baltic Sea Action Plan. The coastal zone constitutes an important filter regulating nutrient inputs

from land to the open sea. Nutrients are transformed and removed in a complex mosaic of processes by microbial communities, plants and animals with environmental conditions, such as salinity and oxygen concentrations, modulating the process rates. The project COCOA will investigate how these nutrient processes are regulated across different coastal zones around the Baltic Sea and how nutrient retention can be improved through coastal zone management.

Further information: [www.bonusportal.org/cocoa](http://www.bonusportal.org/cocoa)

### Project partners

- **Denmark:** Aarhus University (Coordinating partner, coordinator Jacob Carstensen); Technical University of Denmark, Kongens Lyngby
- **Finland:** Åbo Akademi University, Turku; Finnish Environment Institute, Helsinki; University of Helsinki
- **Germany:** Leibniz Institute for Baltic Sea Research Warnemünde, Rostock
- **Lithuania:** Marine Science and Technology Center, Klaipėda University
- **The Netherlands:** Utrecht University
- **Poland:** University of Gdańsk
- **Russia:** Zoological Institute of Russian Academy of Sciences, St. Petersburg
- **Sweden:** Lund University; Stockholm University; University of Gothenburg; Swedish Meteorological and Hydrological Institute, Norrköping

**Policy links:** HELCOM Baltic Sea Action Plan, EU Marine Strategy Framework Directive, EU Water Framework Directive



## INSPIRE – Integrating spatial processes into ecosystem models for sustainable utilisation of fish resources

EUR 3.6 million, duration: 4 years

**Process-based understanding of changes in spatial distributions of commercial fish, disentangling the role of natural drivers and various human induced impacts form the challenging topic for the research project INSPIRE.** The project sets out to fill in the most persistent gaps in knowledge of the spatial ecology of the major commercial fish and thereby support the effectiveness of the relevant policies and ecosystem-based manage-

ment of the Baltic Sea. The project aims to serve as 'a framework axis project' to which other Baltic Sea research could link to. INSPIRE is designed to substantially advance our knowledge on the major commercial fish species in the Baltic Sea (cod, herring, sprat and flounder) that together form more than 95% of the commercial catches, and represent key elements of the Baltic Sea ecosystems.

Further information: [www.bonusportal.org/inspire](http://www.bonusportal.org/inspire)

### Project participants:

- **Estonia:** Estonian Marine Institute, University of Tartu (coordinating partner, coordinator Henn Ojaveer)
- **Denmark:** National Institute of Aquatic Resources, Technical University of Denmark, Kongens Lyngby
- **Finland:** Finnish Game and Fisheries Research Institute, Helsinki
- **Germany:** Thünen Institute for Baltic Sea Fisheries, Rostock; Institute for Hydrobiology and Fisheries Science, University of Hamburg; Helmholtz Centre for Ocean Research Kiel
- **Latvia:** Institute of Food Safety, Animal Health and Environment, Riga
- **Poland:** National Marine Fisheries Research Institute, Gdynia
- **Sweden:** Lund University; Stockholm University; Swedish University of Agricultural Sciences, Uppsala; Uppsala University, Campus Gotland, Visby

**Policy links:** HELCOM Baltic Sea Action Plan, EU Marine Strategy Framework Directive, EU Common Fisheries Policy



## SOILS2SEA – Reducing nutrient loadings from agricultural soils to the Baltic Sea via groundwater and streams

EUR 3.3 million, duration: 4 years

**Both the Baltic Sea Action Plan and the EU Water Framework Directive requires substantial further reductions of nutrient loads (N and P) to the Baltic Sea during the coming years.** Achievements of these goals will only be possible by the implementation of fundamental changes in agricultural practices and land use. This will require the introduction of additional new and innovative measures, because the easiest applicable measures have, in most cases, already been utilised. SOILS2SEA proposes to exploit the fact that the retention (removal by biogeochemical processes or sedimentation) of nutrients in groundwater and surface water systems shows a significant spatial variation, depending on

the local hydrogeological and riverine regime to achieve the goals for nutrient load reduction set out in the Baltic Sea Action Plan. If we more accurately can predict where in a catchment N and P are retained by estimating the retention in the different compartments along the flow path, and also include the delayed effects of mitigation measures due to long solute travel times in groundwater, then we can more cost-effectively design measures to reduce the nutrient loads to the Baltic Sea. Besides the need for improved knowledge on the subsurface and nutrient transport and retention processes on a local scale, this calls for new innovative governance regimes with active involvement of key stakeholders.

### Project partners

- **Denmark:** Geological Survey of Denmark and Greenland, Copenhagen (coordinating partner, coordinator Jens Christian Refsgaard); Aarhus University; Sorbisense, Tjele
- **Germany:** Ecologic Institute, Berlin
- **Poland:** AGH University of Science and Technology, Krakow
- **Russia:** Atlantic Branch of P.P. Shirshov Institute of Oceanology of the Russian Academy of Sciences, Kaliningrad
- **Sweden:** KTH Royal Institute of Technology, Stockholm; Swedish Meteorological and Hydrological Institute, Norrköping

**Policy links:** HELCOM Baltic Sea Action Plan, EU Marine Strategy Framework Directive, EU Water Framework Directive

Further information: [www.bonusportal.org/soils2sea](http://www.bonusportal.org/soils2sea)

## BONUS strategic research agenda 2011–2017, update 2014

■ By the end of the first full year of implementation of BONUS, the updating of the BONUS strategic research agenda was completed and published in the first days of January 2014, just in time to serve as the basis for the BONUS calls opening in 2014.

*In September 2012*, the first step towards updating the research agenda began the work of identifying over 80 regional, European and global parallel marine/maritime policy processes of relevance. Within, numerous crossing points emerged that either currently have or potentially could create win-win situations in shaping the management action towards sustainable ecosystem goods and services.

*In October 2012*, a consultation with the HELCOM Group for Implementation of Ecosystem Approach (HELCOM GEAR) as well as with other relevant experts were carried out or initiated.

*In early March 2013*, the policy framework analysis was published at the combined third BONUS Forum and the joint BONUS-HELCOM stakeholder conference. With the policy framework analysis distributed as a background material, the participants of the conference were invited to contribute to the updating of the strategic research agenda.

*From April 2013 onwards*, a dedicated international drafting team formed by experts of their field, reviewed carefully the five strategic objectives of the research agenda and proposed amendments reflecting the current and future knowledge demands. This review also considered all the earlier consultations and contributions, as well as the outcome of the BONUS call 2012 and the themes covered by the successful projects.

*10–11 September 2013*, the drafting team's detailed review was brought to Tallinn to the BONUS strategic orientation workshop. The scientific community and other key stakeholders, representatives of the national funding agencies and the European Commission provided the final contributions to the update.

*25 November 2013*, the BONUS Steering Committee approved the final version of the agenda's update and it was prepared for publishing online and in hard copies.

As a result of the updating process, more emphasis is now put on the necessity of achieving sustainability of coastal and marine ecosystem services. This positions the BONUS research programme as a generator of new crucial knowledge not only for protection of the environment of the Baltic Sea and its drainage basin, but in equal degree also to many various sectors of economic activities.

To obtain a copy, contact the BONUS Secretariat or download from the BONUS website at [www.bonusportal.org/sra](http://www.bonusportal.org/sra).



## BONUS calls 2014

■ Two further BONUS calls based on the updated BONUS strategic research agenda will open in 2014. A research call titled 'BONUS call 2014: Sustainable ecosystem services' (open 16 January – 16 April 2014) covers six research themes from 'integrated coastal management', 'maritime risk analysis and management', and 'effects of air and water pollution by shipping' to 'governance structures and performance', 'linking ecosystem goods and services to human lifestyles and well-being', and 'maritime spatial planning'.

In the latter half of 2014, a further call covering both research and innovation themes is being planned to invite research and innovation proposals addressing 'eco-technological approaches to achieve good ecological status in the Baltic Sea' and 'sustainable aquaculture in the Baltic Sea region'. In addition, some of the themes opened but left unaddressed in the previous calls may be reopened, depending on funding limits.

## Financial review

■ During this period, a total of EUR 33 million was committed to the funding of the 20 successful projects from the BONUS call 2012. In addition, EUR 1 million of costs incurred from the core tasks of implementation of the programme (including running of the BONUS call 2012). From the total funding available to the BONUS programme, i.e. up to EUR 100 mil-

lion with half generated by the BONUS members and half received from the EU for the years 2012-2017, further funds, up to EUR 15 million, are allocated to the BONUS call 2014: Sustainable ecosystem services. Furthermore, according to a tentative plan, a joint research and innovation call worth up to EUR 35 million may open in the second half of 2014.

## Moving forward, partnerships

■ BONUS values partnerships and looks forward to continuing close collaboration with key partners such as HELCOM, EUSBSR, BDF, CBSS, BSSC, OSPAR, ICES, JPI, VASAB, and many others that share common goals on the knowledge based governance of the Baltic and other regional seas in Europe and beyond.

BONUS has continued to pioneer in the Baltic Sea region the basic idea behind the EU's strategic framework for research and innovation funding, Horizon

2020, and EU's initiative of 'blue growth' in sustainable way, by launching the BONUS call 2012: Innovation and further themes later in 2014, also dedicated to innovation. BONUS looks forward to also continuing to collaborate with the relevant macroregional networks of companies, research actors and financiers that have emerged in particular within the EU Strategy for the Baltic Sea Region.

## Planning "the next" BONUS

■ BONUS is currently considering its future after the end of 2017, then possibly with the Horizon 2020. As a forward-looking model for other forms of future regional

seas research cooperation with common European value, also broadening of the thematic and/or geographic scope of the BONUS programme is being examined.

## BONUS people (December 2013):

### BONUS members, Steering Committee representatives and the related national funding institutions

<b>Denmark:</b>	Fritz Köster	Danish Agency for Science, Technology and Innovation; Danish Council for Strategic Research
<b>Estonia:</b>	Maria Habicht	Estonian Research Council
<b>Finland:</b>	Laura Raaska	FIRD Coop, Academy of Finland
<b>Germany:</b>	Joachim Harms	Forschungszentrum Jülich Beteiligungsgesellschaft mbH; Federal Ministry of Education and Research
<b>Latvia:</b>	Maija Bundule	Latvian Academy of Sciences; Ministry of Education and Science of the Republic of Latvia
<b>Lithuania:</b>	Eugenijus Butkus	Research Council of Lithuania; Ministry of Education and Science of the Republic of Lithuania
<b>Poland:</b>	Leszek Grabarczyk Andrzej Tonderski	National Centre for Research and Development; Ministry for Science and Higher Education Foundation for the Development of Gdańsk University
<b>Sweden:</b>	Lisa Almesjö Mats Svensson	Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning, FORMAS Swedish Agency for Marine and Water Management; Swedish Environmental Protection Agency

### BONUS Advisory Board

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Imke Schneemann	NORGENTA
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## BONUS call 2012

### Viable ecosystem funders

- Danish Agency for Science, Technology and Innovation
- Estonian Research Council
- Academy of Finland
- Forschungszentrum Jülich Beteiligungsgesellschaft mbH (Germany)
- Latvian Academy of Sciences
- Research Council of Lithuania
- National Centre for Research and Development (Poland)
- Russian Foundation for Basic Research
- Swedish Agency for Marine and Water Management
- Swedish Environmental Protection Agency
- Swedish Research Council
- Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning, FORMAS

### Innovation funders

- Danish Agency for Science, Technology and Innovation
- Environmental Investment Centre (Estonia)
- Academy of Finland
- Finnish Transport Safety Agency, Trafi
- Ministry of Agriculture and Forestry (Finland)
- Ministry of Employment and the Economy (Finland)
- Forschungszentrum Jülich Beteiligungsgesellschaft mbH (Germany)
- Latvian Academy of Sciences
- Agency for Science, Innovation and Technology, MITA (Lithuania)
- National Centre for Research and Development (Poland)
- Swedish Agency for Marine and Water Management
- Swedish Civil Contingencies Agency
- Swedish Foundation for Strategic Environmental Research, MISTRA
- Swedish Governmental Agency for Innovation Systems, VINNOVA



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**BONUS**

SCIENCE FOR A BETTER FUTURE OF THE BALTIC SEA REGION