



BONUS

SCIENCE FOR A BETTER FUTURE OF THE BALTIC SEA REGION

Review 2016



BONUS

BONUS, the joint Baltic Sea research and development programme, is funded jointly from the national research funding institutions in the eight EU member states around the Baltic Sea and the EU by a total of EUR 100 million for the years 2011–2017 (projects running until 2020). The BONUS EEIG (the Secretariat) is the legal management organisation of BONUS.

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Contents

| | |
|---|----|
| Foreword | 3 |
| Executive summary | 3 |
| Introduction | 4 |
| BONUS highlights 2016: | 6 |
| Programme | 6 |
| Projects | 7 |
| BONUS young scientist activities | 11 |
| Communicating with the society | 12 |
| Financial review | 13 |
| BONUS beyond 2017 | 13 |
| BONUS people in 2016 | 14 |



Foreword

■ While BONUS is preparing to celebrate its 10th anniversary since its inception on 19 April 2007, I can proudly say that over the years we have managed to build a truly one of a kind, macroregional collaboration of research and innovation funding institutions in the Baltic Sea region. We invite top consortia of researchers and innovators to develop transnational and multidisciplinary project proposals which foster sustainability of the Baltic Sea ecosystem and contribute to blue growth. This includes funding of the best ideas with highest foreseen impact to policies that they support. The findings of a recent assessment show that the BONUS impact on scientific excellence and dissemination until now has been positive and substantial. Also,



the open and collaborative approach in research and innovation cooperation adopted, supports well pan-European approaches and paves the way for future cross-border as well as 'across regions' cooperation. The 'BONUS model' is now advancing as a basis for development of a new 'Northern European regional seas research and innovation programme' encompassing two adjacent seas, the Baltic Sea and the North Sea.

Fritz Köster

Chair of the BONUS Steering Committee 2016/17
Director, National Institute of Aquatic Resources
Technical university of Denmark

Executive summary

■ In 2016, working together with relevant stakeholders continued to be of a pivotal importance for BONUS, the joint Baltic Sea research and development programme. This has been manifested clearly over the years through policymakers' and other end-users' participation in shaping and updating regularly the strategic research agenda and exploiting its outcomes.

To date, BONUS has issued four calls in BONUS Art 185 and one in BONUS+, funded a total of 56 projects worth over EUR 100 million (by mid-2017), involved a total of 16 countries and over 130 region's leading universities, institutions and 30 businesses. BONUS has been funding over 800 researchers working in its Art 185 projects and in addition those who will be starting their work in the 'BONUS call 2015: Blue Baltic' projects from April 2017 onwards.

According to the up till 2016 reported information on the Art 185 projects, 313 BONUS researchers have

served as members in different stakeholder committees (e.g. of HELCOM, ICES, EU etc) and made 58 significant contributions to 'fit-for-purpose' regulations, policies and management practices. They also have contributed 43 times suggestions for designing, implementing and evaluating the efficacy of relevant public policies and governance originating from BONUS projects' work.

The key stakeholder events over the year included the BONUS innovation projects' workshop and exhibition at the European Maritime Day, the 8th Strategy Forum of the EUSBSR, the 1st CBSS Baltic Science Network conference, the 2nd Maritime Spatial Planning Forum and a Blue Economy Business and Science Forum to name a few. Also the BONUS young scientist activities continued during this reporting period.

The following pages present key events and highlights of the fourth full year of activity of the BONUS programme from 1 January until 31 December 2016.



Introduction

BONUS GENERATES KNOWLEDGE AND KNOW-HOW FOR THE BENEFIT OF SUSTAINABLE BALTIC SEA REGION

■ The policy-driven BONUS, the joint Baltic Sea research and development programme, brings together the research communities of marine, maritime, economy and societal research to address the major challenges faced by the Baltic Sea region.

In the coming decades, global change, including climate change, and related long-term and long-range influences, will intensify in the region. Understanding and predicting global change, mitigating it, combatting eutrophication and maintaining sustainable ecosystems all require integrated approaches and integrated research on the entire Baltic Sea system – from the catchment and society to the coast and the sea. In particular, a full understanding of relevant societal options for planning and remediation is needed in order to sustain a healthy Baltic Sea ecosystem for future generations.

In 2016, working together with relevant stakeholders continued to be of a pivotal importance for

BONUS, clearly manifested through policymakers' and other end-users' participation over the years in shaping and updating regularly the strategic research agenda and exploiting its outcomes.

To date, BONUS has issued four calls in BONUS Art 185 and one in BONUS+, funded a total of 56 projects worth over EUR 100 million (by mid-2017), involved a total of 16 countries and over 130 region's leading universities, institutions and 30 businesses. BONUS has been funding also over 800 researchers working in its Art 185 projects and in addition those who will start their work in the 12 'BONUS call 2015: Blue Baltic' projects from 1 April 2017 onwards.

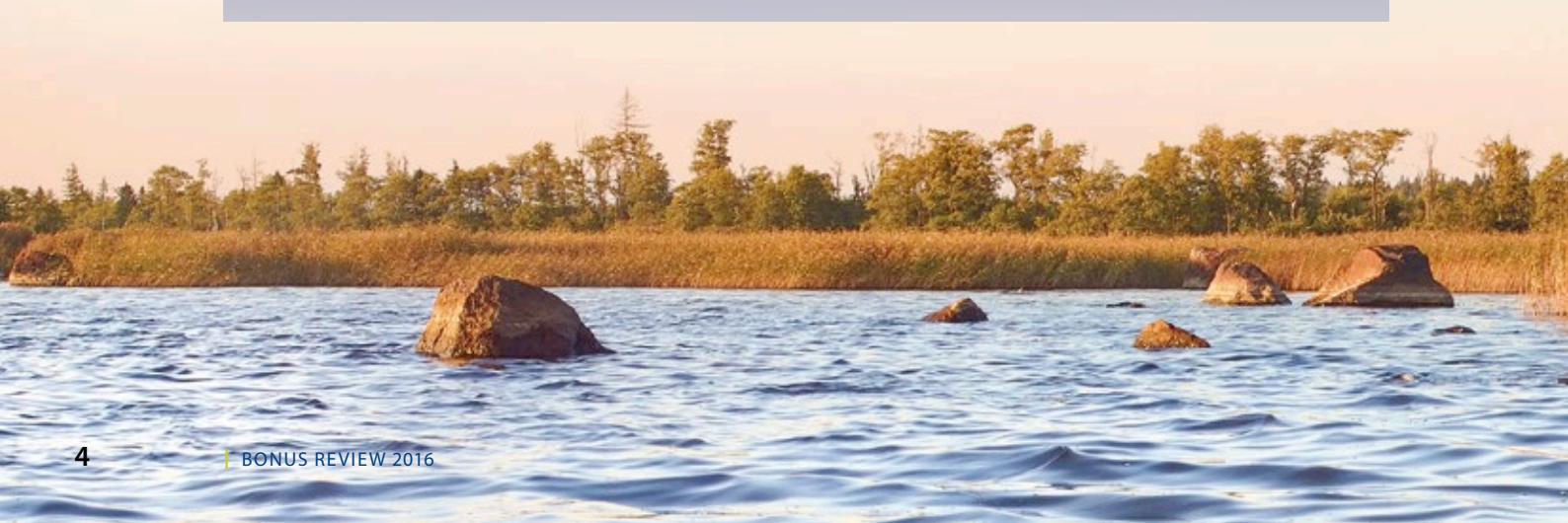
Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden are cooperating in BONUS to provide policy-makers with the information they need to achieve greater sustainability.

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

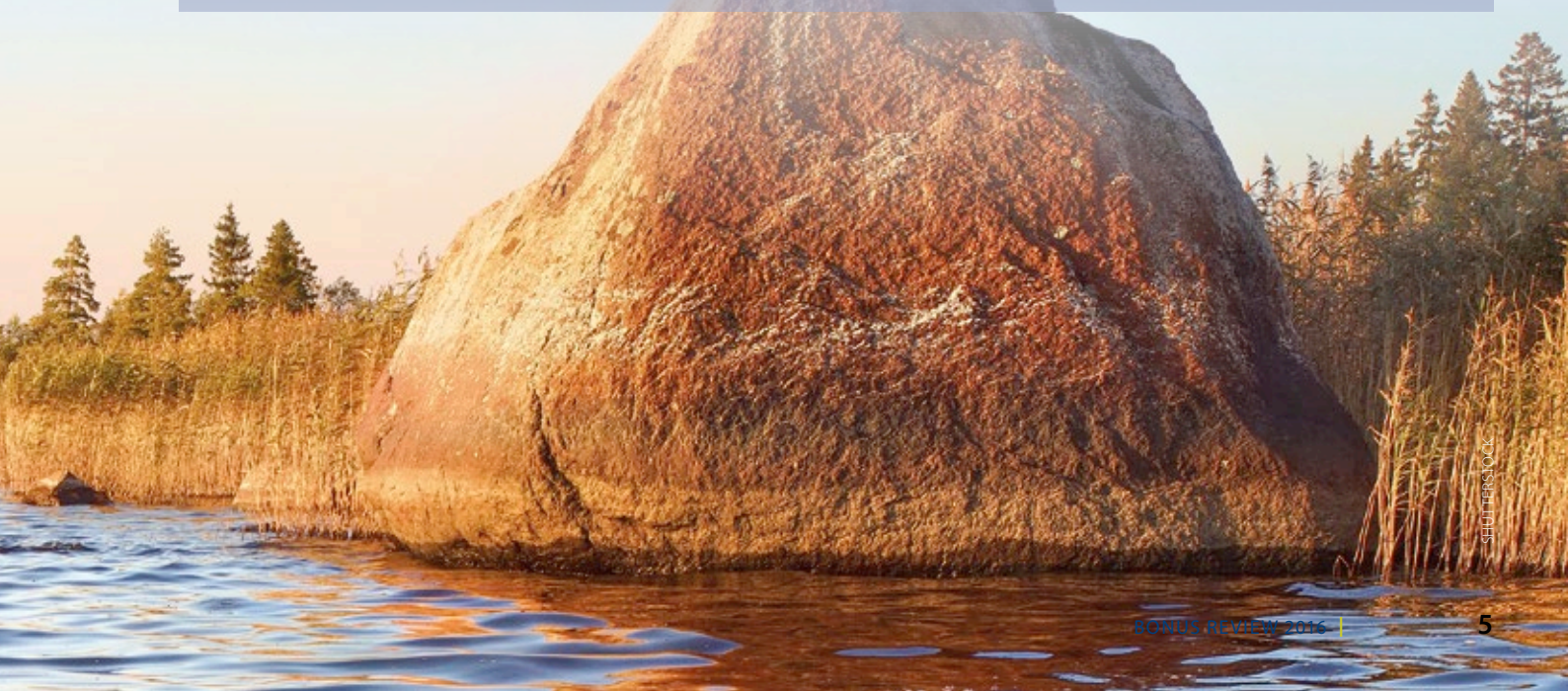


BONUS

- influences the ecosystem based management action in the Baltic Sea and the wider European landscape
- acts as a trend-setter and testlab for developing programmes in support of solving EU macro-regional issues from the perspective of the first and only programming and funding initiative in operation integrating marine and maritime research and contributing increasingly to sustainable blue growth and related EU strategies
- funds research and innovation projects of high excellence and relevance based on the strategic research agenda drawn and updated together with a total of over 800 stakeholders across the macro-region and the EU
- collaborates closely and systematically with the international and regional actors such as HELCOM, VASAB, ICES, EU Strategy for the Baltic Sea Region, Interreg Baltic Sea Region, CBSS
- contributes new scientific knowledge for implementation of the HELCOM Baltic Sea Action Plan, the EU Strategy for the Baltic Sea Region, EU Marine Strategy Framework Directive in the Baltic Sea marine region, the EU Directive on Maritime Spatial Planning, the EU blue growth agenda and other national, regional and European coastal and marine environmental and sustainability policies and plans
- communicates the sound knowledge, ecoinnovation and sustainable solutions generated in BONUS projects through established scientific and end-user stakeholder platforms such as the BONUS Forum and those shared with the EU Strategy for the Baltic Sea Region and other regional actors
- creates a bridge between and for the EU and Russian scientific communities by establishing bilateral agreements with Russian funding institutions
- co-finances its actions through real money funding by the participating countries and the EU, a total of 40 projects worth close to EUR 100 million in BONUS Art 185 (by mid-2017)
- has aligned or entirely replaced national marine research strategies of the member countries with the joint agenda and is channeling all member countries' programmatic Baltic Sea research funding through the BONUS programme

BONUS phases

- *BONUS ERA-NET (2003–2008) developed preconditions for a joint Baltic Sea research programme*
- *BONUS+ (2009–2011) piloted the mechanisms of collaboration among the national funding institutions*
- *BONUS 2011–2017 launched in 2010 by a European Parliament's and the European Council's co-decision*
- *BONUS future proposal: 'Towards sustainable blue growth: Outline of the joint Baltic Sea and the North Sea research and innovation programme 2018–2023 (BONUS Publication No. 15)'*



BONUS highlights 2016

PROGRAMME SUPPORTS REGION'S SUSTAINABILITY AGENDA IN VERSATILE WAYS

January

■ "This year [2016] of BONUS collaboration will be the busiest one to date in terms of new knowledge and solutions production," says Kaisa Kononen, the Executive Director, BONUS. "Clustering and the outcomes from collaboration will create the real added value, which can be reached only in a coordinated, interdisciplinary programme, such as BONUS."

April

■ The first BONUS clustering workshop organised by BONUS BALTICAPP brings together more than 40 researchers and stakeholders from six BONUS projects and other organisations to explore scenarios that envisage the future of the Baltic Sea area.

■ BONUS joins as an associated organisation the Interreg Baltic Sea Region funded CBSS project 'Baltic Science Network'.

May

■ Drawing an audience of close to 70, the BONUS ANCHOR, ESABALT, FERRYScope, SWERA and ZEB innovation projects' results are prominently on display at a joint BONUS workshop and adjacent exhibition during the European Maritime Day 2016 in Turku (18-19 May) under the theme of 'Investing in Blue Growth – smart and sustainable solutions'.

July

■ BONUS SHEBA leads a BONUS maritime cluster outreach campaign at the Swedish politicians' week in Visby on 3 July with BONUS BALTSPACE, CHANGE, ESABALT, PINBALL and ZEB projects.

■ BONUS chairs together with BONUS COCOA and BALTCOAST projects a well-attended session 'Coastal filters under remake' at ECSA 56 conference 'Coastal systems in transition' (Bremen).

September

■ BONUS takes part in discussion on cooperation between science and industrial sectors at the first EU Maritime Affairs organised Blue Economy Business and Science Forum (Hamburg).

■ Impact assessments on the BONUS programme are initiated, for publishing in 2017.

November

■ The 8th Strategy Forum of the EUSBSR sees the heads of BONUS, HELCOM, VASAB and Baltic Earth in 'hot seats' being probed by BONUS young scientists about the Baltic Sea future.

■ BONUS exchanges knowledge on how to accelerate the move towards an environmentally-friendly Blue Economy in an EU DG Environment 'Green jobs in the blue economy' workshop (Tallinn).

■ BONUS future plans are disclosed at the North Sea Open Science conference (Ostend).

■ BONUS takes part in a panel discussion of the PE2020 Innovative public engagement tools for Horizon 2020 project's final conference (Brussels).

■ BONUS projects contribute significantly to the second Baltic Maritime Spatial Planning Forum organised by VASAB (Riga).

■ Working lunch with research attachés of the new BONUS (North Sea) countries ('BONUS 2') is hosted by the BONUS Secretariat (Brussels).

■ BONUS demonstrates the impact of BONUS research as an invited speaker at the ERA-LEARN 2020 Joint Programming Conference (Brussels).

December

■ BONUS provides its expertise to the seminar on the Black Sea Cooperation Programme in STI' organised by the Center for Regional & International STI Studies and Support (Brussels).

PROJECTS SHOW GOOD 'MIDTERM' RESULTS WHILE 'CLUSTERING ACTIONS' INTENSIFY

■ By the end of 2016, the BONUS programme reached its true midterm with 7 research projects completing their third and 8 their second year, 5 innovation projects finishing and 8 more lined up to finish in 2017. In 2017, also new 'Blue Baltic' projects will start from 1 April onwards and will carry on until 2020. In 2016, BONUS projects took also leaps forward in forming 'bottom-up' clusters originating from the needs of projects and initiated by motivated project partners to 'integrate project outputs into more impactful results'. The work towards more active collaboration across the projects that was started already by 16 BONUS+ pilot projects in 2009–2011 continues to intensify in BONUS Art 185.

The BONUS results are now accumulating rapidly as do their noteworthiness in the policy and socio-economic landscapes that are shaping the future of the region. The highlights from the BONUS projects' annual reports 2016 (reporting on previous year) are numerous.

According to the up till 2016 reported information, 313 BONUS researchers had served as members in the stakeholder committees (24 HELCOM, 75 ICES, 18 EU etc) and made 58 significant contributions to 'fit-for-purpose' regulations, policies and management practices. They also had contributed 43 times suggestions for designing, implementing and evaluating the efficacy of relevant public policies and governance originating from BONUS projects' work.

Furthermore, the seven 'BONUS call 2012: Viable ecosystem' projects had reported by last year 718 different dissemination and public outreach events (average 103 per project), while the 13 'BONUS call 2012: Innovation' projects had accumulated by the last year's reporting 295 occasions and the eight 'BONUS call 2014: Sustainable ecosystem services' projects 165 different dissemination and public outreach activities or events.

During the first years of implementation, the research projects had published 144 peer review articles, half of those with authors from two or more participating countries. The projects had organised also 69 stakeholder events ranging from the small meetings in the ministry/agency/municipality level to big international conferences.

A total number of 98 popular science papers were published, with projects BONUS COCOA, BIO-C3 and ANCHOR leading in numbers. Projects also produced 36 multi-media products like video-clips and TV

episodes and examples are available for example in YouTube.

The high number of interviews given to the media by the project participants over the years – 128 in the 'BONUS call 2012: Viable ecosystem' projects, 43 in the 'BONUS call 2012: Innovation' projects, and 11 in the 'BONUS call 2014: Sustainable ecosystem services' projects – demonstrates further the broad public interest towards the BONUS projects and their results.

Clusters 'add value' and enable publishing synthesis of BONUS results

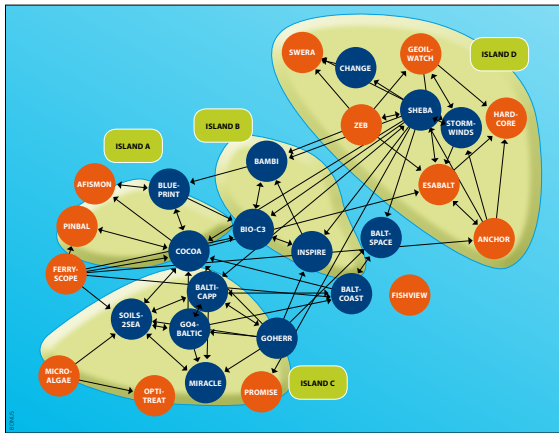
As clustering interactions intensified in 2016 between BONUS projects, it also became apparent that the support and encouragement by BONUS has been, and continues to be, instrumental in forging opportunities for diverse groups of experts from different fields to come together and add great value to the joint work; this will eventually result into synthesis papers in key, international journals in the coming years.

Also steps are being taken for systematic cooperation with project clusters of other funding frameworks e.g. Interreg Baltic Sea Region programme and BONUS together encourage their projects to increase cooperation in order to broaden and deepen the knowledge in common fields of work.

"Interreg Baltic Sea Programme looks forward to exploring further ways of collaboration with BONUS also in project clusters around our shared sea."

Ms. Eeva Rantama of Interreg Baltic Sea Programme





The 'BONUS archipelago of project clusters' (blue research and orange innovation projects, excluding the 'Blue Baltic' projects commencing from April 2017 onwards).

Island A: 'Coastal biogeochemistry processes and indicators'

Island B: 'Spatial patterns of marine biological diversity'

Island C: 'Combating nutrient loads from the drainage'

Island D: 'Clean and safe shipping'.

► See *BONUS in Brief May 2016* for more on BONUS clusters www.bonusportal.org/publications

Topic specific project highlights:

Saving the ecosystem

- Coupled physical biogeochemical and food-web modelling for better and more comprehensive projections of the future Baltic has been developed further from the BONUS+ initiated era within the BONUS BALTI-CAPP project.
- Significant progress with development and calibration of the hydrological catchment model has been achieved by the BONUS SOILS2SEA project while BONUS GO4-BALTIC has analysed how different crop rotation schemes support achieving the aims of water, climate and welfare policies.
- BONUS BALTCOAST has developed the Baltic Sea costs' effectiveness model by including forests in the models of 23 drainage basins. This enables further integration of different policy arenas: water quality, climate change, and different land uses in the catchment of the Baltic Sea.
- Scientists of the BONUS BIO-C3 project have delivered new information on the fate of dissolved organic carbon in the Baltic Sea. Future marine monitoring and observation will see a massive entry of new genomic methods.

- BONUS BLUEPRINT project has already identified 54 genes in the Baltic Sea prokaryotic plankton showing particular potential as genes that might serve as good "genetic signatures" when observing the ecosystem's response to environmental stressors. These genes will be given particular attention in future studies.

For the sake of diversity and productivity

- The ecological role of invasive species is being studied by the scientists of the BONUS BIO-C3 project, who recently produced a synthesis of the most important evidence-based information on the ecological roles and impacts of the widespread non-indigenous invasive species in the Baltic Sea.
- Evidence by BONUS COCOA shows that in particular in the Gulf of Finland bio-irrigation facilitated by the invasive polychaete *Marenzelleria* may reduce the flux of phosphate from the sediments and by this facilitate a switch from a seasonally oxygen-depleted system back to a normal.
- The most critically needed knowledge for policies, management plans of biological resources or setups of marine protected areas on connectivity among sub-populations of the same species is intensively studied by BONUS BAMBI (brown seaweed *Fucus*), BONUS BIO-C3 (blue mussel) and BONUS INSPIRE (cod, herring, sprat and flounder).

Resolving spatial challenges

- The BONUS BALTSPEACE project has finalised the analytical and methodological framework for assessing maritime spatial planning. This framework will be further applied by the project at several case areas in the Baltic. BONUS BALTSPEACE also compiled a draft catalogue of approaches and tools that may be used in maritime spatial planning in order to resolve the integration challenges at different stages and in different contexts of maritime planning.
- The BONUS COCOA scientists developed a pan-Baltic catalogue of coastal sites characterising physical, chemical and biological properties of six types of coasts: archipelagos, embayments, estu-



aries, lagoons, open coasts and river-dominated coasts. They discovered remarkable differences in forms of transport and removal of nitrogen in different Baltic Sea sediment types – another evidence calling for spatially-resolved management.

- Studies of BONUS INSPIRE project have confirmed, amongst others, that only about 10 % of the cod population conduct trans-basin migrations. Consequently, the local stock recovery, most likely, will have limited effect on cod recovery in the whole Baltic Sea.

Towards safer and cleaner shipping

- BONUS SHEBA has continued to analyse in detail different drivers of the shipping sector in the Baltic Sea region. The Automatic Identification System (AIS) -based commercial shipping activity data is used to develop inventories of pollution emission into air and water and underwater noise under current conditions and the future scenarios that will eventually lead to e.g. producing the noise source maps for the Baltic Sea.
- The BONUS ZEB project's "zero emission" concept translated into an add-on filtering module for commercially available 'on-board oily water separator' systems that will remove pollutants remaining in the treated bilge water to such high levels that enables its reuse.
- BONUS STORMWINDS has defined the methodological approach for application of a safety model for complex eco-socio-technical systems applied to the maritime transportation in winter conditions. Development of an online information management and exchange software platform is underway to enable, maintain and share the effective Common Situational Awareness (CSA) for maritime emergency management.
- BONUS ESABALT's main result is a vessel-driven and user-driven semi-autonomous crowdsourcing technique for information gathering, sharing and integration across different sources and users for improved situational awareness: commercial vessels, pleasure boats, authorities and distributed sensor stations. The new information platform offers a huge innovation and commercialisation potential to any European commercial manufacturer of maritime products and services.

■ BONUS ANCHOR project developed a Harbour Captain Assistant for Navigation, Observation and data Routing system and the prototype of this system is now being demonstrated to the potential users in selected Baltic seaports.

- BONUS SWERA developed an innovative Sunken Wreck Environmental Risk Assessment approach to mitigate pollution threat posed by the sunken ships. The new tool will advise salvage operators in designing safe and economically feasible ways to execute successful operations.
- BONUS CHANGE team has measured copper and zinc release from the antifouling paints used on leisure boats and found significant contamination by antifouling toxins also in boat-yards' soils and sediments leading to proposing recommendations for more sustainable boatyard management.

Four BONUS projects contributing to safer and cleaner shipping have flagship project status in the EU Strategy for the Baltic Sea Region programme: BONUS CHANGE – Policy Area HAZARDS, BONUS ESABALT – Policy Area SAFE, BONUS SHEBA – Policy Area SHIP and BONUS STORMWINDS – Policy Area SAFE.



Where industry meets the environment

- BONUS innovation projects contribute to advancement of eco-technological solutions reducing harmful pollution and promoting the circular economy.
- In order to advance towards sustainable food safety and food security, BONUS PROMISE tested properties of organic and inorganic recycled phosphorus fertilisers and found variable degradation levels of antibiotics during manure digestion in biogas production, for instance from fully degraded antibiotics to others accumulating in the digestate.
- BONUS OPTITREAT sought solutions for optimising the small wastewater treatment systems available on the market in the Baltic Sea region. The preliminary results, among other, show an increase in the share of antibiotic resistant bacteria in the bio-active sludge that may raise concerns related to further handling and disposal of sewage sludge.

► *Detailed information on implementation of all BONUS projects is available on the BONUS website where most up-to-date periodic and final summary reports of each BONUS project are published. For these, visit www.bonusportal.org/projects.*


















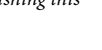

BONUS projects' implementation:

- Seven 'BONUS call 2012: Viable ecosystem' projects 2014–2018 www.bonusportal.org/ve
- Thirteen 'BONUS call 2012: Innovation' projects 2014–2017 www.bonusportal.org/inno
- Eight 'BONUS call 2014: Sustainable ecosystem services' projects 2015–2018 www.bonusportal.org/ses

- **BONUS call 2015: Blue Baltic' projects 2017–2020:**
The 'BONUS call 2015: Blue Baltic' was closed in March 2016. The themes included were those not yet sufficiently covered by the other 28 projects (see table). Based on the independent evaluation, the BONUS Steering Committee invited a total of 12 proposals worth EUR 30 million to negotiations for grant agreements during 2016: Eight consortia under the research 'themes 1' and four under the innovation 'themes 2'. It is envisaged that the successful projects will start their implementation from April 2017 onwards.

www.bonusportal.org/bb

Status of themes covered from the 'BONUS strategic research agenda, update 2014' by the 40 BONUS projects selected from the 'BONUS call 2012: Viable ecosystem' (green), 'BONUS call 2012: Innovation' (purple), 'BONUS call 2014: Sustainable ecosystem services' 2014 (orange) and 'BONUS call 2015: Blue Baltic' 2015 (blue). The circles denote projects funded in different calls that address the respective theme as a supplementary one.

| RESEARCH THEMES (ABBREVIATED TITLES) | STATUS OF THE SRA THEMES' COVERAGE |
|---|--|
| 1.1 Dynamics of biogeochemical processes |  |
| 1.2 Changing biodiversity | BAMBI, BIO-C3  |
| 1.3 Food web structure and dynamics | BLUEWEBS  |
| 1.4 Impacts of hazardous substances | BALTHEALTH, BB1*  |
| 2.1 Changes in catchment land cover patterns | SOILS2SEA  |
| 2.2 The role of the coastal systems | COCOA  |
| 2.3 Integrated coastal management | BALTCOAST  |
| 2.4 Eco-technological approaches | MICROALGAE, OPTITREAT, PROMISE, SWERA, ZEB, CLEANWATER, BB2*  |
| 3.1 Maritime risk analysis and management | STORMWINDS  |
| 3.2 Effects of air and water pollution by shipping | SHEBA  |
| 3.3 Improving stock assessments, spatial heterogeneity of stocks | INSPIRE  |
| 3.4 Evaluation framework for fisheries management |  |
| 3.5 Sustainable aquaculture in the Baltic Sea | FLAVOPHAGE, OPTIMUS, CLEANAQ  |
| 4.1 Governance structures, performance and policy instruments | CHANGE, GO4BALTIC, GOHERR, MIRACLE  |
| 4.2 Linking ecosystem goods and services to human lifestyles and well-being | BALTICAPP  |
| 4.3 Maritime spatial planning | BALTSPACE, BB3*  |
| 5.1 Integrated monitoring programmes | BLUEPRINT, BB4*  |
| 5.2 Innovative measurement techniques | AFISMON, FERRYSCOPE, FISHVIEW, HARDCORE, PINBAL, ANCHOR, SEAMOUNT, BB5*  |
| 5.3 User-driven ICT services | ESABALT, GEOILWATCH  |

* A number of 'BONUS call 2015: Blue Baltic' projects consortia were under the Grant Agreement negotiations at the time of publishing this BONUS review 2016, hence projects are referred to as BB1–BB5. The announcement of these projects is expected by June 2017.

BONUS young scientist activities

■ In 2016, activities aimed at young scientists continued together with the PE2020 Public Engagement Innovations for Horizon 2020 project <https://pe2020.eu>. This project chose the BONUS young scientists blogging activity on the BONUS projects' website www.bonusprojects.org as one of its innovative, bottom-up, real-time case studies. The PE2020 sponsored training 'Gaining insights into social media and blogging' gathered almost 30 young scientists together in March 2016. The training session covered both the best practices for different social media channels, and the secrets of effective and inspiring blogging. The session climaxed with a blog clinic exercise, where participants with some help from the trainers started to work on their individual posts for BONUS projects' blogs - some for the first time ever!

In autumn BONUS joined forces with ICES for a workshop at the annual ICES science conference on the topic of 'getting published' attended by 70 young scientists. To end the year, BONUS developed together with the young scientists a joint BONUS-HELCOM-VASAB-Baltic Earth session for the 7th EUSBSR

Annual Forum 2016 held in November in Stockholm titled 'Hot Seat: Which way is up? Young scientists take on key regional actors about desired future options for the Baltic Sea'.

The importance of investing efforts in young scientists' community in the Baltic Sea region continues to be in the core of BONUS also in the future; as will be the ambition of the BONUS sponsored young scientist activities that promote the creation of networks of tomorrow's leading Baltic Sea scientists across disciplines.

In June 2017, the 6th BONUS Young Scientist Club will convene on the first day of the 11th Baltic Sea Science Congress (2017) to be held in Rostock. Already three months before the training session that will be run for the second time in the BSSC by the world-renowned researcher-trainer Hugh Kearns, is fully booked. A total of 120 participants have registered to take part in the session titled 'Turbo-charge your writing and communicate the impact of your research!'.

► www.bonusportal.org/ys



TUUKKA TROBERG

Hugh Kearns revealing seven secrets of extremely successful researchers in Riga, June 2015.

Communicating with the society

■ The key stakeholder events over the year included the BONUS innovation projects' workshop and exhibition during the European Maritime Day held in the Baltic Sea region in Turku, the 8th Strategy Forum of the EU Strategy for the Baltic Sea Region held in Stockholm, the first CBSS Baltic Science Network meeting as an associated organisation in Hamburg, the Blue Economy Business and Science Forum in Hamburg and the 2nd Maritime Spatial Planning Forum in Riga to list only a few. Altogether, the BONUS Secretariat attended, spoke, observed and/or participated in 43 conferences, advisory board meetings, seminars and other international events with an underlined relevance to BONUS.

► *for highlights see www.bonusportal.org/events*

■ The BONUS website continued to spearhead the BONUS communications tools. In 2016, visits to the BONUS website totalled close to 45 000 and unique visitors 24 000 while a total of 145 000 pageviews were recorded.

► *The BONUS website is the leading communications tool of BONUS featuring dedicated areas for the programme, projects, news, events, publications and stakeholders. www.bonusportal.org*

■ The BONUS in Brief newsletter was published in May and December and distributed electronically and via post and handed out in tens of BONUS exhibitions organised over the year.

► *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*

■ The BONUS e-bulletin alerts went out 19 times to close to 3000 subscribers in 2016 with over a quarter of recipients being 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*

■ The second year of visitor information on the new BONUS projects' led website recorded a total of 27 000 visits of which half were to the most popular blogs section of the website.

► *The BONUS projects' website is managed by the projects themselves and serves as a first point of contact and latest information to all ongoing BONUS projects. www.bonusprojects.org*

■ PE2020 Public Engagement Innovations for Horizon 2020 project consortium provided training on social media and blogging for over 25 young scientists in March 2016. Also, BONUS participated in PE2020 end-conference in Brussels in November 2016 and CommOCEAN 2016 in Bruges gaining further visibility to the BONUS young scientists blogging activities amongst the international public engagement and professional marine communicators' communities.

► <http://pe2020.eu/>

■ Through the BONUS projects' own efforts, use of social media, e-bulletins and the over 60 news items published on the BONUS website and media releases and advisories issued, BONUS projects and/or BONUS related topics were covered in various media around the Baltic Sea hundreds of times over the year.

► www.bonusportal.org/news | www.bonusportal.org/publications | www.bonusportal.org/projects | *BONUS in Facebook and Twitter: @BONUSbaltic*

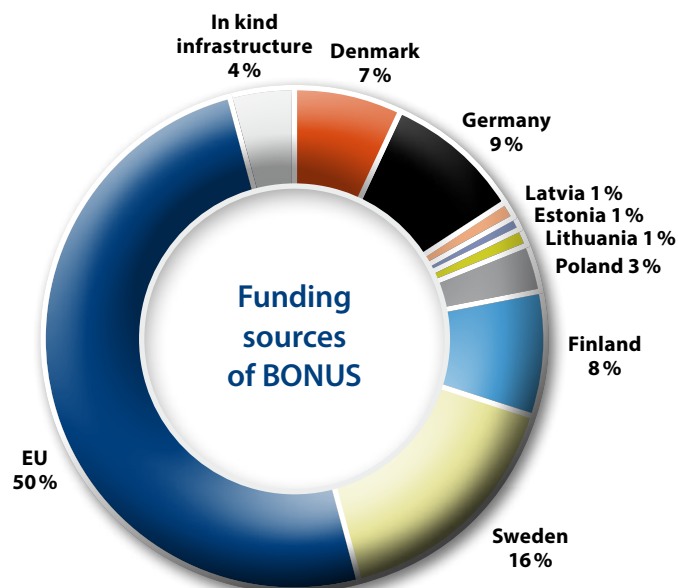


Financial review

■ The funding for the 40 projects of the BONUS calls 2012, 2014 and 2015 constitute already 90 % of the total funding of EUR 100 million reserved for implementing the BONUS programme. The decision on the remaining EUR 5 million still available from the total cash committed to fund BONUS projects will be made in the latter half of 2017.

During the reporting period, BONUS succeeded in mobilising additional financial resources from the participating states worth approximately EUR 3,1 million for funding the projects of the 'BONUS call 2015: Blue Baltic'. From the total EUR 5 million contribution reserved for the running costs of the BONUS programme, 72 % was used by the end of 2016.

The national contribution from the BONUS member states is provided both as cash funding and as free of charge in kind infrastructure contribution. The BONUS projects may use the research infrastructure – research vessels, field stations, computing facilities etc. – free of charge, and the use of infrastructure generates matching EU contribution for funding projects within BONUS programme. By the end of the reporting year



the agreements concluded with the providers of in kind research infrastructures were worth of EUR 6 million, and so far the matching EU contribution used for funding projects amounts to EUR 3,6 million.

BONUS beyond 2017

■ An outline document for the continuation and geographical extension of BONUS, the joint Baltic Sea research and development programme to the North Sea was submitted to the European Commission in late 2015 and published in February 2016.

The proposal was prepared by EU member states adjacent to two northern European regional seas, the Baltic Sea and the North Sea. Scientific community, research funding institutions and ministries from Belgium, Denmark, Estonia, Finland, France, Germany, Latvia, Lithuania, the Netherlands, Poland, Sweden and the United Kingdom contributed to its

development. BONUS and the countries committed to the new programme continued negotiations with the European Commission on how best to prepare and implement the new phase.

► *Andrusaitis, A., D. Cox, A. Dosdat, et al. (2016), Towards sustainable blue growth: Outline of the joint Baltic Sea and the North Sea research and innovation programme 2018–2023. BONUS Publication No. 15. www.bonusportal.org/publications (category 'BONUS series')*



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Funders of the BONUS calls

BONUS members and the EU are the funders of the BONUS calls 2012, 2014 and 2015.

In addition, the following funders have funded the 'BONUS call 2012: Innovation'

- Environmental Investment Centre, Estonia
- Finnish Transport Safety Agency
- Ministry of Agriculture and Forestry of Finland
- Ministry of Employment and the Economy of Finland
- Agency for Science, Innovation and Technology, Lithuania
- Swedish Civil Contingencies Agency
- Swedish Foundation for Strategic Environmental Research
- Swedish Governmental Agency for Innovation Systems

and the following funders have funded the 'BONUS call 2015: Blue Baltic'

- Swedish Foundation for Strategic Environmental Research
- Swedish Governmental Agency for Innovation Systems



Swedish Agency
for Marine and
Water Management



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