BONUS

SCIENCE FOR A BETTER FUTURE OF THE BALTIC SEA REGION

The 3rd BONUS Symposium

Sustainable Ecosystem Governance under Changing Climate and Land Use in the Baltic Sea Region

Gdańsk, 14-16 March, 2018

Preliminary Program

BALTIC APP Go4 Baltic MIRACLE SOILS2SEA

Consortium of BONUS projects: MIRACLE, SOILS2SEA, BALTICAPP & GO4BALTIC

http://bonus2018.eu

Day 1: 14/3/2018		Day 2: 15/3/2018				Day 3: 16/3/2018			
09:00 - 09:15	Welcome	09:00 - 09:50	KEYNOTE: Kasper Kok			09:00 - 09:50	KEYNOTE: James CR Smart		
09:15 - 10:05	KEYNOTE: Lotta Andersson	09:50 - 10:00	BREAK			09:50 - 10:00	BREAK		
10:05 - 10:45	Project Presentations: BONUS BALTICAPP BONUS SOILS2SEA	10:00 - 11:00	1. Impacts of changing climate, policy and society on nutrient loading to the Baltic Sea I	2. Approaches for stakeholder dialogues		10:00 - 11:00	9. Policy support for multiple ecosystem services	10. Stream remediation measures	Side event. Project TReNDS
10:45 - 11:15	BREAK	11:00 - 11:25	BREAK			11:00 - 11:25	BREAK		
11:15 - 12:05	KEYNOTE: James Shortle	11:25 - 12:45	3. Modelling nutrient transport	4. Outlooks for marine environments		11:25 - 12:25	11. Social learning for innovative governance	12. Spatially differentiated regulation	
12:05 - 12:45	Project Presentations: BONUS GO4BALTIC BONUS MIRACLE								
12:45 - 13:30	LUNCH	12:45 - 13:45	LUNCH + Poster			12:25 - 13:25	LUNCH + Poster		
13:30 - 14:45	Poster-Session	13:45 - 14:35	KEYNOTE: Wim de Vries			13:25 - 14:25	13. Local and regional governance	14. Economic decision support	
14:45 - 15:35	KEYNOTE: Jon Winsten								
15:35 - 16:00	BREAK	14:35 - 14:45	BREAK			14:25 - 14:40	BREAK		
16:00 - 17:30	New insights on the Baltic Sea Region Discussions on modelling, stakeholder views, social learning, ecosystem services and policies	14:45 - 15:45	5. Impacts of changing climate, policy and society on nutrient loading to Baltic Sea II	6. Evaluating agri-environmental policies	Side event. Project Gypsum	14:40 - 15:40	Next challenges and next steps.		
		15:45 - 16:15	BREAK						
		16:15 - 17:15	7. Governance and Innovation	8. Catchment nutrient loading-scenario analysis					
18:30 - 20:00	Conference DINNER								

Legend
Plenary session
Coffee break, lunch, dinner
Sessions in parallel tracks
Side Events

PROGRAM		
Day 1: 14/3/2018		
Chair: Andrzej Tonderski	Welcome. **Andris Andrusaitis** (**BONUS Secretariat EEIG, Finland**)	*09:00 – 09:15*
Keynote *Chair: Karin Tonderski*	**Lotta Andersson (Swedish Meteorological & Hydrological Institute, Sweden):** Making the intangible manageable - is there a formula to merge research findings with local governance focusing on climate change adaptation?	***09:15 – 10:05***
Project presentations *Chair: Berit Hasler*	BONUS BALTICAPP - Well-being from the Baltic Sea – applications combining natural science and economics **Hyytiäinen K**, Ahtiainen H, Artell J, Bauer B, Bertram C, Buczyński M, Budziński W, Czajkowski M, Joyce KB, Gustafsson B, Ehrnsten E, Lankia T, Meier M, Meyerhoff J, Norkko A, Pihlainen S, Pouta E, Rehdanz K, Saraiva S, Sihvonen M, Tomczak M, Zagórska K, Zandersen M.	***10:05 – 10:45***
	BONUS SOILS2SEA – Reducing nutrient loads from agricultural soils to the Baltic Sea via groundwater and streams **Refsgaard JC**, Olesen JE, Wachniew P, Wörman A, Bartosova A, Stelljes N, De Jonge H, Chubarenko B, Jakobsen R.	
	BREAK	***10:45 – 11:15***
Keynote *Chair: Markku Ollikainen*	**James Shortle (Penn State College of Agricultural Science, USA):** Innovating policy for effective and efficient control of nutrient pollution: challenges and paths forward	***11:15 – 12:05***
Project presentations *Chair: Jens Christian Refsgaard*	BONUS GO4BALTIC – Coherent policies and governance of the Baltic Sea ecosystems **Hasler B**, Ollikainen M, Elofsson K, Czajkowski M, Andersen HE, Peterson K, Nielsen HØ.	***12:05 – 12:45***
	BONUS MIRACLE - Mediating integrated actions for sustainable ecosystem services in a changing climate **Tonderski K**, Neset TS, Tonderski A, Walczykiewicz T, Lagzdins A, Zilans A, Schwarz G, Jomaa S, Pedersen SM, Capell R, Olsson O, Powell N.	
	LUNCH	***12:45 – 13:30***
	POSTER SESSION	***13:30 – 14:45***

Keynote *Chair: Karin Tonderski*	**Jon R Winsten (Winrock International, USA):** Improving participation and the cost-effectiveness of agricultural pollution control programs through the use of Pay-for-Performance Conservation.	***14:45 – 15:35***
	BREAK	***15:35 – 16:00***
Discussion *Moderator: Mette Termansen*	New insights on the Baltic Sea Region - discussions on modelling, stakeholder views, social learning, ecosystem services and policies	***16:00 – 17:30***
	Conference DINNER	***18:30 – 20:00***

Day 2: 15/3/2018		
Keynote *Chair: Kari Petri Hyytiäinen*	**Kasper Kok** & Pedde, S **(Wageningen University, Netherlands):** Scenarios for land use, socio-economic and climate change – A call for integration	*09:00 – 09:50*
	BREAK	*09:50 – 10:00*
Session 1 **Impacts of changing climate, policy and society on nutrient loading to the Baltic I** *Chair: Katarina Elofsson*	Using extended socio-economic scenarios to investigate drivers and pressures on the Baltic Sea up to 2100 **Zandersen M**, Hyytiäinen KP, Meier M, Tomzcak M, Bauer B, Haapasaari P, Olesen JE, Gustafsson B, Refsgaard JC, Fridell E, Pihlainen S, Letissier M, Kosenius AK, Van Vuuren D.	*10:00 – 11:00*
	Land use and land cover projections in the Baltic Sea Basin under different SSPs and future climate change Jabloun M, **Olesen JE**, Zandersen M, Hyytiäinen KP, Smedberg E.	
	Change in nutrient loads to the Baltic Sea Basin with changing climate, socioeconomic impacts, and land management practices **Bartosova A,** Strömqvist J, Capell R, Olesen JE, Jabloun M, Arheimer B, Donnelly C, Hyytiäinen K, Pedersen SM, Zilans A, Tonderski K, Zandersen M.	
Session 2 **Approaches for stakeholder dialogues** *Chair: Kerstin Bly Joyce*	Visualization supported dialogues in the Baltic Sea Region **Neset TS,** Navarra C, Wilk J, Capell R, Bartosova A.	*10:00 – 11:00*
	Employing narratives and ethnographic studies to inform policy options for nutrient reductions **Martinez G.**	
	Constructing an open citizen science tool to collect information on the Baltic Sea and recreation. Proof of concept and future possibilities **Artell J.**	
	BREAK	*11:00 – 11:25*

Session 3 **Modelling nutrient transport** *Chair: Tomasz Walczykiewicz*	Geochemical processes affecting reactive nitrogen in a clay till, hill slope field system **Jakobsen R,** Hansen AL, Hinsby K, Refsgaard JC.	*11:25 – 12:45*
	Modelling of nitrate contamination in fissured-porous karstic aquifer underlying Kocinka catchment using tracer-calibrated flow and transport model Kania J, **Michalczyk T**, Witczak S, Bar-Michalczyk D, Rozanski K, Dulinski M, Najmann J.	
	How to increase utilization of nitrogen in manure - the Danish case **Blicher-Mathiesen** G**,** Andersen HE, Rasmussen A, Rolighed J, Carstensen M.	
	Utilising data and studies within the Baltic Sea Basin to develop a map for nitrogen reduction in groundwater **Højberg AL,** Hansen AL, Wachniew P, Żurek AJ, Virtanen S, Arustiene J, Strömqvist J, Rankinen K, Refsgaard JC.	
Session 4 **Outlooks for the marine environments** *Chair: Mikołaj Czajkowski*	Impacts of “greening” on eutrophication in the Baltic Sea **Jansson T,** Andersen HE, Gustafsson B, Hasler B, Höglind L.	*11:25 – 12:45*
	Uncertainties in projections of the Baltic Sea ecosystem driven by an ensemble of global climate models Saraiva S, Meier HEM, Andersson H, Höglund A, Dieterich C, Hordoir R, **Eilola K.**	
	What are potential future states of the Baltic Sea food web? **Bauer B,** Gustafsson B, Hyytiäinen K, Meier HEM, Müller-Karulis B, Saraiva S, Tomczak MT	
	Contingent behavior and asymmetric preferences – Valuing recreational benefits of the Baltic Sea **Bertram C,** Ahtiainen H, Meyerhoff J, Pakalniete K, Pouta E, Rehdanz K.	
	LUNCH & Poster Session	*12:45 – 13:45*

Keynote *Chair: Jens Christian Refsgaard*	**Wim de Vries** & Kros H. **(Wageningen University, the Netherlands):** Assessment of the needed increase in nitrogen use efficiency in European agricultural soils in view of water quality.	*13:45 – 14:35*
	BREAK	*14:35 – 14:45*
Session 5 **Impacts of changing climate, policy and society on nutrient loading to the Baltic II** *Chair: Jørgen E. Olesen*	Long term impacts of societal and climatic changes on nutrient loading to the Baltic Sea Zandersen M, **Pihlainen S,** Hyytiäinen K, Andersen HE, Jabloun M, Smedberg E, Gustafsson B, Bartosova A, Thodsen H, Meier M, Saraiva S, Olesen JE, Swaney D, McCrackin M.	*14:45 – 15:45*
	Modelled source apportionment of nutrient loads to Baltic Sea basins under current and future conditions **Capell R,** Bartosova A, Strömqvist J, Arheimer B.	
	Scenario for structural development of livestock production around the Baltic Sea **Niskanen O,** Iho A, Kalliovirta L.	
Session 6 **Evaluating agri-environmental policies** *Chair: Gerald Schwarz*	Exploring farmers' preferences for implementing agri-environmental schemes - a cross country comparison of schemes as incentives for nutrient abatement in Baltic Sea catchments. **Czajkowski M,** Hasler B, Elofsson K, Hansen LB, Helin J, Häggmark T, Konrad M, Nielsen HØ, Niskanen O, Noman T, Pedersen AB, Petersen K, Zagorska K.	*14:45 – 15:45*
	Game-theoretic analysis of Baltic Sea eutrophication: policy instruments for burden sharing of reduced eutrophication in the Baltic Sea **Pavlova Y,** Ahlvik L.	
	Flexibility in the choice of N abatement measures: Implications for costs of implementation and environmental service provision **Hansen LB,** Termansen M, Hasler B.	
	BREAK	*15:45 – 16:15*

Session 7 **Governance and Innovation** *Chair: Nico Stelljes*	The impact of water quality policies on innovation in nitrogen and phosphorus technology in Sweden **Häggmark Svensson T,** Elofsson K.	*16:15 – 17:15*
	Public policies for wetland implementation in Denmark and Sweden – historical lessons and emerging issues **Graversgaard M,** Dalgaard T, Hoffmann CC, Jacobsen BH, Powel N, Strand J, Feuerbach P, Tonderski K. .	
	Drivers of technology adoption at farm level in the Baltic region **Nielsen HØ,** Konrad M, Pedersen AB.	
Session 8 **Catchment nutrient loading-scenario analysis** *Chair: Hans E. Andersen*	Impact of future climate changes on hydrology, N-reduction and N-load in a Danish groundwater-dominated catchment **Hansen AL,** Børgesen CD, Olesen JE, Refsgaard JC	*16:15 – 17:15*
	Nitrogen leaching losses from two Baltic Sea catchments under scenarios of changes in land use, land management and climate **Olesen JE,** Bar-Michalczyk D, Bosshard T, Børgesen CD, Hansen AL, Jabloun M, Refsgaard JC, Wachniew P**.**	
	Scenario analyses of future nutrient export from the Pregolya River catchment area to the Baltic Sea considering changes in climate, land use and agricultural practices **Chubarenko B,** Gorbunova J, Domnin D.	

Day 3: 16/3/2018		
Keynote *Chair: Berit Hasler*	**Jim Smart (Griffith University, Brisbane, Australia):** Nitrogen trading – modelling principles from Australia's Great Barrier Reef: parallels and contrasts with the Baltic	*09:00 – 09:50*
	BREAK	*09:50 – 10:00*
Session 9 **Policy support for multiple ecosystem services** *Chair: Antti Iho*	Mainstreaming ecosystem services for improved agricultural and environmental policy integration: Lessons from a review **Schwarz G,** Zilans A, Veidemane K.	*10:00 – 11:00*
	Adapting policy settings to promote multiple ecosystem benefits: Lessons learnt from case studies in the Baltic Sea Region **Zilans A,** Schwarz G, Veidemane K, Osbeck M, Tonderski A, Olsson O.	
	Cultural ecosystem services provided by the Baltic Sea marine environment **Pouta E,** Ahtiainen H, Bertram C, Liski E, Soini K, Meyerhoff J, Pakalniete K, Rehdanz K.	
Session 10 **Stream remediation measures** *Chair: Bo Gustafsson*	Interactions between climate change impacts and nutrient mitigation measures: Comparison of the Selke (Germany) and Berze (Latvia) catchments **Jomaa S,** Veinbergs A, Yang X, Lagzdins A, Abramenko K, Rode M.	*10:00 – 11:00*
	Design of stream remediation measures for nutrient retention and attenuation in the hyporheic zone Morén I, Wörman A, **Riml J.**	
	Scenario analysis for stream restoration actions aimed at reducing nutrient loads to the Baltic Sea **Wörman A**, Riml J, Capell R, Morén I.	
	BREAK	*11:00 – 11:25*

Session 11 **Social learning for innovative governance** *Chair: Eija Pouta*	A social learning perspective on water governance - experiences from Helge å, Sweden. **Olsson O,** Osbeck M, Do T, Powell N.	*11:25 – 12:25*
	Identifying mitigation measures for multiple benefits in the Reda basin **Tonderski A**, Okrągła E, Machnikowski M, Burakowska H, Tonderski K.	
	Two dimensions of nitrate pollution management in an agricultural catchment **Wachniew P,** Martinez G, Bar-Michalczyk D, Kania J, Malina G, Michalczyk T, Różański K, Witczak S, Zieba D, Żurek AJ, Berrini A.	
Session 12 **Spatially differentiated regulation** *Chair: Andis Zilans*	Dairy farm management when nutrient runoff and greenhouse gas emissions count **Lötjönen S,** Temmes E, Ollikainen M.	*11:25 – 12:25*
	Spatially differentiated regulation measures – can it save the Baltic Sea from excessive nutrient loads, and is it possible? **Refsgaard JC,** Hansen AL, Højberg AL, Olesen JE, Hashemi F, Wachniew P, Wörman A, Bartosova A, Stelljes N, Jonge H, Chubarenko B.	
	Spatially differentiated regulation of nutrients – stakeholder perceptions in three different case study sites **Stelljes N,** McGlade K, Martinez G.	
	LUNCH & Poster Session	*12:25 – 13:25*

Session 13 **Local and regional governance** *Chair: Przemysław Wachniew*	Reconcling Stakeholder demands by enacting a post normal approach within nutrient governance **Powell N,** Do T, Olsson O, Osbeck M, Schwarz G, Tonderski A, Zilans A, Veidemane K, Tonderski K.	*13:25 – 14:25*
	Possible land use scenario for the Reda catchment case study and its impact on water management and marine water Walczykiewicz T, Jakusik E, Opial-Gałuszka U, **Przygrodzki P**, Skonieczna M, Woźniak Ł.	
	The revealed preferences of Baltic Sea governments: Goals, policy instruments, and implementation of nutrient abatement measures **Elofsson K**, von Brömssen C.	
Session 14 **Economic decision support** *Chair: Neil Powell*	A bottom-up approach to environmental Cost-Benefit Analysis **Carolus JF,** Hanley N, Olsen SB, Pedersen SM**.**	*13:25 – 14:25*
	Developing improved methods for identifying the cost-efficient abatement set in the Baltic Sea region **Helin J.**	
	Improving the cost-effectiveness of water quality improvements through spatial scale changes to target-setting **Czajkowski M,** Andersen HE, Blicher-Mathiesen G, Elofsson K, Hagemejer J, Hasler B, Humborg C, Smart J, Smedberg E, Stålnacke P, Thodsen H, Wąs A, Wilamowski M, Żylicz T, Hanley N.	
	BREAK	*14:25 – 14:40*
Discussion *Moderator: Gun Rudquist*	**Next challenges and next steps.**	*14:40 – 15:40*

Side event 15/3 **Gypsum treatment of agricultural fields – A novel and cost-efficient water protection measure** *Chair: Markku Ollikainen*	Gypsum reduces agricultural phosphorus load: preliminary results from a large-scale pilot **Ekholm P**, Ollikainen M, Punttila E.	*15/3* *14:45 – 15:45*
	Gypsum treatment of fields: a cost-efficient measure for the Baltic Sea **Ollikainen M**, Ekholm P, Punttila E.	
Side event 16/3 **Transport and reduction of nitrate in Danish landscapes at various scales – TReNDS** *Chair: Anker L Højberg*	Accounting for natural reduction of nitrogen **Højberg AL**, Iversen BV,Jessen S, Engesgaard P, Refsgaard JC, Hansen AL, Gertz F, Kjaergaard C.	*16/3* *10.00 – 11.00*
	Analysing drain flow modelling: How can representation of nitrate drainage transport be improved in catchment scale models? **Karlsson IB**, Højberg AL, Iversen BV.	
	Advancing local engagement in nitrate regulation **Gertz F.**	

POSTER SESSION	
Title of poster	***Authors***
Modelling impact of agricultural land use changes on nitrogen export from the Kocinka catchment	**Bar-Michalczyk D**, Michalczyk T, Kania J, Børgensen CD.
Patterns and trends in riverine water quality in the Baltic Sea basin: modeling nutrients with HYPE	**Bartosova A**, Strömqvist J, Capell R, Simonsson L, Arheimer B.
Shaping environmental policy choices – A logistic regression analysis on Swedish municipal councils	**Brockwell E**.
Cost-effectiveness analysis of nutrient mitigating measures: A cross-country comparison under the impact of climate and land-use change	**Carolus JF**, Bartosova A, Pedersen SM, Olsen SB.
Spatially-explicit model of the Baltic Sea-based recreation demand – new estimates of recreational value, its distribution along the coast, and the influence of environmental conditions	**Czajkowski** M, Zandersen M, Aslam U, Angelidis I, Becker T, Budziński W, Zagórska K.
Scenario analysis of the Pregolya River discharge as response to changing climate conditions	**Domnin D**, Chubarenko B, Voropaev R.
Benthic-pelagic coupling in coastal seas – modeling macrofaunal biomass production in response to organic matter input	**Ehrnsten E**, Bauer B, Norkko A, Gustafsson, B.
Assessment of nutrient concentrations and export for the Pregolya River (South-Eastern Baltic) by monitoring data 2014 – 2016	**Gorbunova J**, Domnin D, Chubarenko B.
Understanding shallow groundwater dynamics and the effect of tile drainage on flow paths around the redox interface in a Danish till area	**Hansen AL**, Jakobsen R, Refsgaard JC, Højberg AL, Iversen BV, Kjærgaard C.
Methods of spatially targeting agricultural mitigation measures for reducing uncertainty of estimated nitrogen load reductions to aquatic systems	**Hashemi F**, Olesen JE, Jabloun M, Hansen AL.
Go4baltic farm survey	**Hasler B,** Czajkowski M, Elofsson K, Hansen LB, Helin J, Häggmark T, Konrad M, Nielsen HØ, Niskanen O, Noman T, Pedersen AB, Petersen K, Zagorska K.
Groundwater and stream threshold values as a tool for compliance testing of groundwater and surface water chemical status and protection of the Baltic Sea – general principles and examples	**Hinsby K**, Refsgaard JC, Jakobsen R, Hansen AL, Olesen JE, Wachniew P
What was the nitrogen concentration in runoff water from Danish catchments to coastal waters around year 1900?	**Jensen PN**, Olesen JE, Kronvang B, Windolf J, Eriksen J.

Potential significance of riparian lowlands on nitrogen fluxes from agricultural drainage in Danish watersheds	**Kjaergaard C**, Forsmann D, Hørfarter R.
Drivers of participation in gypsum treatment of fields as an innovation for water protection	**Kosenius AK**, Ollikainen M.
Economic benefits from reaching a good status of the Baltic Sea	**Lankia T,** Ahtiainen H, Meyerhoff J, Pouta E, Bertram C, Pakalniete K, Rehdanz K.
GHG marginal abatement cost curves for Finnish agriculture in the case of multiple pollutants and interrelations	**Lötjönen S**, Temmes E, Ollikainen M.
The making of the documentary film Soils2Sea: How narrative films complement scientific investigation	**Martinez G**, Berrini A.
Interactive visualization for data exploration – The MIRACLE Visualization Tool	**Neset T-S**, Navarra C, Wilk J, Capell R, Bartosova A.
Transport and transformation of nitrate in a Danish riparian lowland	**Petersen RJ,** Prinds C, Iversen BV, Kjærgaard C, Jessen S, Engesgaard P.
Mapping groundwater flow paths in riparian lowlands with geophysics - how deep do we need to go?	**Prinds C.,** Petersen RJ, Greve MH, Iversen BV.
A study of the nitrate management discourse in Poland and a comparison with Denmark	**Ptak EN**, Busck AG, Refsgaard JC.
Nutrient retention in a remediated stream – evaluation of a tracer experiment with ^{15}N, ^{32}P and ^{3}H	**Riml J,** Morén I, Wörman A, Zięba D, Wachniew P.
Optimal Abatement of nitrogen and phosphorus loading from spring crop cultivation	**Sihvonen** M, Valkama E, Hyytiäinen K.
Increased nutrient recycling in agriculture around the Baltic Sea: implications for eutrophication	**Svanbäck A,** McCrackin ML.
Method for logging subsurface redox signature with a novel Redox Probe	**Vela I,** Ejlskov P, Højberg AL, Ernsten V.
Questions for modelling on the local scale – case study area of Reda catchment	**Walczykiewicz T**, Jakusik E, Opial-Gałuszka U, Skonieczna M, Woźniak Ł.
Lagtime of pollutant transport through catchments: reducing nutrient loadings to the Baltic Sea	**Żurek AJ**, Różański K, Witczak S.