

LuWQ2019

International Interdisciplinary Conference

on

Land Use and Water Quality Agriculture and the Environment

Aarhus, Denmark,

3 June - 6 June 2019

Preliminary Conference Programme

Version 8 May 2019

**With modifications to the 'version 10 April 2019', till 27 April 2019,
and subsequent 'after 27 April' 8 additional modifications**

Version 8 May 2019

With modifications to the 'version 10 April 2019', till 27 April 2019, and subsequent 'after 27 April' 8 additional modifications, namely:

- #27 P, CANCEL== Re_ LuWQ2019, first Word-based PRELIMINARY version of CONFERENCE PROGRAMME.pdf
- #282 P, CANCEL== Re_ LuWQ2019, first Word-based PRELIMINARY version of CONFERENCE PROGRAMME.pdf
- #161 O, CANCEL== RE_ LuWQ2019, Reminder for ORAL PRESENTERS to REGISTER.pdf
- #175 O, to be presented by Stina Olofsson [not Maria Stenberg]== SV_ LuWQ2019, Reminder for ORAL PRESENTERS to REGISTER.pdf
- #54 O, CANCEL, from Dr. Insa Kühling, Halle== Re_ LuWQ2019, first Word-based PRELIMINARY version of CONFERENCE PROGRAMME.pdf
- #173 to become POSTER (was ORAL), add Chantal as co-author== RE_ LuWQ2019, Rémi Dupas, abstract #173 ORAL to be POSTER, to present by Chantal Gascuel.pdf
- #173 P, to be presented by Chantal Gascuel [not Rémi Dupas]== RE_ LuWQ2019, Rémi Dupas, abstract #173 ORAL to be POSTER, to present by Chantal Gascuel.pdf
- #202 O, CANCEL== LuWQ2019, #202 ORAL, Eva Mockler cannot attend, talk will be CANCELLED.pdf

Number orals becomes = 141 (27 April was 145)

Number posters becomes = 98 (27 April was 99)

Number of text strings "[presented by]" becomes = 22 occurrences (27 April was 20)



International Interdisciplinary Conference on
Land Use and Water Quality
Agriculture and the Environment
Aarhus, Denmark, 3-6 June 2019

Jointly convened by

- DCE - Danish Centre for Environment and Energy, Aarhus University, Denmark
- Department of Bioscience, Aarhus University, Denmark
- National Institute for Public Health and the Environment (RIVM), the Netherlands
- Geological Survey of Denmark and Greenland (GEUS), Denmark
- Umweltbundesamt (UBA), Federal Environment Agency, Germany



Scientific sponsors and institutional supporters:

- Flanders Environment Agency (VMM), Belgium
- IAH, International Association of Hydrogeologists
- INRA, Science and Impact, France
- Jülich Research centre, Germany
- National Science Challenge – Our land and water, New Zealand
- Von Thünen Institute, Germany



OUR LAND
AND WATER

Toitū te Whenua,
Toiora te Wai



LuWQ2019 Conference Programme

(Total 239 abstracts: 141 oral, 98 poster)

The following sessions are distinguished for oral presentation


- A.i-A.v** Increasing our understanding of 'systems function': research, tools and methodologies to increase understanding and improving modelling of the hydro(geo)logical, geochemical and biochemical processes (Systems Function)
(Monday 3 June 10:40 to Wednesday 5 June 15:15)
- B.i-B.iv** Water quality monitoring: improving monitoring, data management and combined monitoring-modelling to support the evaluation of programmes of measures (WQ Monitoring)
(Monday 3 June 15:45 to Thursday 6 June 12:15)
- C.i-C.ii** Impact of climate change on land use and water quality: assessment of impact on groundwater and surface water quality (Climate and WQ)
(Monday 3 June 13:30 to Tuesday 4 June 10:00)
- D.i-D.vi** Assessment of national or regional policy: effectiveness of programmes of measures on water quality on a regional and national scale (Policy Assessment)
(Monday 3 June 10:40 to Wednesday 5 June 17:00)
- E.i and E.ii** Improving water quality by farm management practices: research (monitoring and modelling) at plot, field and catchment scales to quantify the effects of farming practices and changes in land use (WQ and Land Use)
(Thursday 6 June 10:45 to 15:00)
- F.i-F.iii** Improving water quality by establishing eco-technological mitigation measures: development, testing, implementation and operation at plot, field and catchment scales to quantify the effects of structural measures (Eco-Technologies)
(Tuesday 4 June 10:45 to Thursday 6 June 15:00)
- G.i-G.ii** Managing protected areas for water supply and nature conservation: risk assessment techniques, monitoring and modelling of water quality and quantity for the protection of (a) water resources for drinking water supply, and (b) groundwater dependent terrestrial ecosystems (Management Protected Areas)
(Monday 3 June 13:30 to Thursday 6 June 10:00)
- HI.i-HI.vi** Decision-making on and implementation of Programmes of Measures: the role of stakeholder input and science in policy decision-making, and social and economic incentives and regulatory mandates that drive implementation (carrots and sticks) (Decision Making)
(Tuesday 4 June 13:45 to Thursday 6 June 12:15)
- SS1.i-SS1.ii: Special Session on Land and water management for a sustainable bioeconomy** - Use of bioprocesses to support a sustainable production of food, materials and energy **(BIOECONOMY)**
(Tuesday 4 June 10:45 to 15:15)
- FAIRWAY workshop (i-ii)** – Farm system management and governance for producing good water quality for drinking water supplies (FAIRWAY)
(Wednesday 5 June 10:45 to 15:15)

Poster session

- Poster session (All Themes A, B, C, D, E, F, G, HI and special session 1)**
Tuesday, 4 June, 17:15-18:45, with drinks and snacks
Poster authors should attend their posters, for technical discussions with interested attendees.

Overview: Sunday-Thursday, 2 June - 6 June 2019

Legend

 = lunch











 = coffee break

Oral session

Poster display / session

Overview: Sunday-Thursday, 2 June - 6 June 2019

Sunday 28 May: Pre-registration / Conference secretariat desk open 17:00 – 19:30
Welcome / Icebreaker 18:00 – 20:00

Monday 3 June	7:30 – 8:30	8:30 – 10:00	10:00 – 10:40	10:40 – 12:00	12:00 – 13:30	13:30 – 15:00	15:00 – 15:45	15:45 – 17:15		18:30 – 22:00	
	Registration Posters to be installed		Opening	Introduction D.i		Session A.i Session C.i Session D.ii Session G.i		A.ii / B.i		Conference Dinner	
	Upload ppt		Registration / Conference secretariat desk open (8:30 – 17:30)								
	Posters on display										
	Tuesday 4 June	7:30 – 8:30	8:30 – 10:00	10:00 – 10:45	10:45 – 12:15	12:15 – 13:45	13:45 – 15:15	15:15 – 16:00	16:00 – 17:00		17:15 – 18:45
Registration Posters to be installed		B.ii / C.ii		Session D.iii Session F.i Session HI.i FAIRWAY.i		Session A.iii Session D.iv Session HI.ii FAIRWAY.ii		D.v	Poster session with refreshments		
Upload ppt		Posters on display									
Wednes- day 5 June		7:30 – 8:30	8:30 – 10:00	10:00 – 10:45	10:45 – 12:15	12:15 – 13:45	13:45 – 15:15	15:15 – 16:00	16:00 – 17:00		
	Registration		HI.iii		Session A.iv Session B.iii Session HI.iv Special S1.i		Session A.v Session F.ii no session Special S1.ii		D.vi		
	Upload ppt		Posters on display								
Thursday 6 June	7:30 – 8:30	8:30 – 10:00	10:00 – 10:45	10:45 – 12:15	12:15 – 13:45	13:45 – 15:00	15:00 – 15:30				
	Registration		G.ii / HI.v		Session B.iv Session E.i Session HI.vi		E.ii / F.iii	Closure			
	Upload ppt		Posters on display			Posters to be removed					

Monday, 3 June 2019

07:30-17:30 Registration / Conference secretariat desk open PowerPoint presentations to be uploaded at the conference secretariat desk
<i>Lecture Hall: Mathematics Building Auditoria E</i>
Opening of the Conference Chair: Brian Kronvang (Denmark)
10:00 - 10:40 Welcome Welcome on behalf Aarhus University by pro-dean Kurt Nielsen, Faculty of Science and Technology, AU Welcome on behalf Aarhus University by Director Hanne Bach, Danish Centre for Environment and Energy, A Some practical issues, Organising Committee, Karel Kovar
Introduction & Session D.i: Assessment of national or regional policy Chairs: Brian Kronvang (Denmark) & Dico Fraters (the Netherlands)
10:40 – 11:10 Introduction (B. Kronvang) (abstract #000)
11:10 – 11:30 #023_McDowell Perspectives on global nutrient loads and flows
11:30 – 11:50 #235_Svendsen Baltic Sea Action Plan: Assessing progress towards fulfilling nutrient reduction targets as prerequisite for a non-eutrophied marine environment
11:50 – 12:00 SpecIssue_LuWQ17_Stutter: Inform about Special Issue of Journal from LuWQ2017
12:00 – 13:30 Lunch, including 15 minutes' walk to Lakeside building

<i>Lecture Hall: Eduard Biermann Auditoriet</i>	<i>Lecture Hall: Jeppe Vontilius Auditoriet</i>	<i>Lecture Hall: Merete Barker Auditoriet</i>	<i>Lecture Hall: William Scharff Auditoriet</i>
Session A.i Impact of groundwater travel times	Session C.i Climate and weather effects on water quality	Session D.ii Assessment of Action programmes	Session G.i Management of Drinking Water Protection Areas
Chairs: Gunnar Lischeid (Germany) & Annemieke van der Wal (Netherlands)	Chairs: Patricia Chambers (Canada) & Claudia Heidecke (Germany)	Chairs: Frank Wendland (Germany) & Pavel Rosendorf (Czech Republic)	Chairs: Marco Acutis (Italy) & Falk Hilliges (Germany)
13:30-13:45 #019_Eisele Which time-lags in groundwater have to be taken into account before nutrient reduction measures show effects after implementation? Case study North Rhine-Westphalia, Germany	13:30-13:45 #125_Bartosova The role of climate, socioeconomics, and mitigation efforts in future nutrient loads to the Baltic Sea	13:30-13:45 #163_Klages Nitrogen surplus- a unified indicator for Europe?	13:30-13:45 #075_Schullehner Chronic health effects of nitrate in drinking water
13:45-14:00 #037_Jiang Ongoing release of legacy nitrate from agricultural vadose zone delays groundwater quality improvement response to BMPs	13:45-14:00 #257_Mellander Large-scale weather changes and weather extremes influence on phosphorus loss to small agricultural rivers	13:45-14:00 #226_Elliott Soil and water management for nutrient control in the Northern Great Plains of Canada and the USA	13:45-14:00 #218_Emmert Risk management and risk-oriented groundwater monitoring in well catchment areas
14:00-14:15 #038_Merz Nitrate transport through groundwater into the sea: A ticking time bomb?	14:00-14:15 #216_Knouft Influence of best management practices on contemporary and future water resources and biodiversity: A watershed-scale assessment in the Midwestern United States	14:00-14:15 #260_Gömann Development and assessment of regionally adapted agricultural nitrogen reduction measures to reach groundwater and surface water quality targets in North Rhine-Westphalia (NRW), Germany	14:00-14:15 #239_de Jonge Nitrate, hardness and herbicide metabolites in 40 wellfields in the Eastern Netherlands
14:15-14:30 #039_Collins.S Combining the use of age and isotope tracers to shed light on catchment hydrology, groundwater processes and land use effects	14:15-14:30 #225_Waterloo Assessment of the effect of water quality measures under current and future climate and farming scenarios using a two-step modelling approach	14:15-14:30 #162_Coppens The use of the nutrient emission model NEMO for quantifying losses of nitrogen and phosphorous from agriculture to surface waters in Flanders	14:15-14:30 #246_van Loon Impact of past and current pesticide use on groundwater sources used for drinking water production in the Netherlands

14:30-14:45 #105_Wilson Estimating nitrate transit times in the vadose zone in two contrasting regions in New Zealand	14:30-14:45 #187_Kraft Influence of drought on soil water dynamics and nitrate concentrations on agricultural sites in southwestern Germany	14:30-14:45 #145_D'heygere Interregional coordination on gap analysis in Belgium for the Water framework directive	14:30-14:45 #289_Stubsgaard Targeted measures in main groundwater recharge areas in the Aarhus Municipality
14:45-15:00 #242_Van_Vliet Forecasting nitrate concentrations in Dutch chalk springs using tritium based travel time distributions	14:45-15:00 <void slot, to be used by session chairs>	14:45-15:00 <void slot, to be used by session chairs>	14:45-15:00 <void slot, to be used by session chairs>
15:00-15:45 Coffee break, including 15 minutes' walk to Mathematics building			
<i>Lecture Hall: Mathematics Building Auditoria E</i>			
Session A.ii & B.i: Increasing our understanding of 'systems function' & Water quality monitoring Chairs: Lærke Thorling (Denmark) & Lars Svendsen (Denmark)			
15:45 – 16:15 #124_Stenger Utilising stream monitoring data to elucidate pathway-specific nutrient transfers in meso-scale catchments			
16:15 – 16:35 #137_Jordan Phosphorus transfers from soil to water: Linking concentration and flux to catchment carrying capacities			
16:35 – 16:55 #211_Lischeid Artefacts and pitfalls in assessing land use effects on groundwater, stream and pond water quality			
16:55 – 17:15 #245_Kivits Trends in age-dated groundwater: Analysing diffuse groundwater pollution in the Dutch Meuse River basin			
End of presentations of Monday, 3 June 2019			
Conference dinner (18:30 at Centralværkstedet, Værkmestergade 9) (included in conference fee)			

Tuesday, 4 June 2019

07:30-17:30 Registration / Conference secretariat desk open PowerPoint presentations to be uploaded at the conference secretariat desk			
<i>Lecture Hall: Mathematics Building Auditoria E</i>			
Session B.ii & C.i : Water quality monitoring & Impact of climate change on land use and water quality Chairs: Chantal Gascuel-Odoux (France) & Roland Stenger (New Zealand)			
08:30 – 09:00 #160_Heidecke The impact of agricultural production and policy on water quality during the dry year 2018			
09:00 – 09:20 #217_Chambers Hydrological variability affects particulate nitrogen and phosphorus in streams of prairie Canada			
09:20 – 09:40 #195_Rozemeijer Monitoring for a spatial targeting approach for nutrients			
09:40 – 10:00 #065_Hilliges Opportunities and limits of official reporting data for scientific purposes in groundwater protection			
10:00-10:45 Coffee break, including 15 minutes' walk to Lakeside building			
<i>Lecture Hall: Eduard Biermann Auditoriet</i>	<i>Lecture Hall: Jeppe Vontilius Auditoriet</i>	<i>Lecture Hall: Merete Barker Auditoriet</i>	<i>Lecture Hall: William Scharff Auditoriet</i>
Session D.iii Evaluation of Action programmes Chairs: Thomas Harter (USA) & Mariëlle van Vliet (Netherlands)	Session F.i Bufferstrip & wetlands to reduce losses Chairs: Marianne Bechmann (Norway) & Martin Schönhart (Austria)	Session HI.i Economics of programmes & finding effective tools Chairs: Bob Middleton (United Kingdom) & Natalie Phillips (United Kingdom)	FAIRWAY Workshop Chairs: Gerard Velthof (the Netherlands)
10:45-11:00 #144_Turner The increasing risk of imidacloprid in Australia's Great Barrier Reef catchments	10:45-11:00 #017_Valkama Nitrogen retention by buffer zones in surface runoff and groundwater: A meta-analysis	10:45-11:00 #070_Hansen, L Flexibility in the choice of N abatement measures: Implications for costs of implementation and environmental service provision	10:45-11:00 Intro_Velthof

11:00-11:15 #213_Bleeker Evaluating the Dutch pesticide policies: How successful were they in reaching the targets of the Water Framework Directive?	11:00-11:15 #104_Quaglia Mitigating pesticide levels in surface waters: Long-term surface water monitoring in an agricultural catchment	11:00-11:15 #220_Strauch Land use optimization based on scenario analysis: An approach to foster multifunctionality in agricultural landscapes	11:00-11:15 #078_Surdyk Agri-drinking water indicators (ADWIs): Linkage between agricultural practice and good drinking water quality
11:15-11:30 #253_Andjelov Modelling of nutrient fluxes in Slovenia for the report on implementation of the Nitrates Directive for the period 2012-2015	11:15-11:30 #120_Zak The multi-functionality of integrated buffer zones in Northwest Europe	11:15-11:30 #074_Coussement Impact of fertilizer buffer strips on direct nutrient losses in surface water and farmers cost-benefit-balance in Flanders	11:15-11:30 #118_Laursen Decision support tools for reduction of nitrate and pesticide pollution from agriculture
11:30-11:45 #067_van der Wal Long-term field observations may indicate phosphate leaching in sandy agricultural soils	11:30-11:45 #238_Kjaergaard Constructed wetlands targeting nutrient removal in agricultural drainage discharge: A new cost-effective mitigation strategy in Denmark	11:30-11:45 #256_Hoogeveen Best performing dairy farms in the Netherlands: Their results, strategy and management	11:30-11:45 #180_Commeline Effectiveness of agricultural management practices to reduce pesticide pollution to ground and surface waters – a meta-analysis
11:45-12:00 #106_McClain Nitrate occurrence in groundwater of Alberta, Canada	11:45-12:00 #149_Tanner How much wetland would be needed for 20% and 40% reduction in agricultural nitrogen loads into Te Waihora / Lake Ellesmere?	11:45-12:00 #013_Collins.A The effectiveness of on-farm measures for delivering multiple benefits: Integrating farm surveys and modelling to co-design solutions at landscape scale	11:45-12:00 #182_Groenendijk Review of measures to decrease nitrate pollution of drinking water
12:00-12:15 <void slot, to be used by session chairs>	12:00-12:15 #117_Audet Nutrient retention in restored riparian wetlands in Denmark	12:00-12:15 #015_Gutierrez_Gines Water quality, ecosystem restoration and traditional knowledge	12:00-12:15 #167_Boekhold Innovative governance approaches to protect drinking water resources against nitrate and pesticide pollution from agriculture
12:15 – 13:45 Lunch (no walk)			

<i>Lecture Hall: Eduard Biermann Auditoriet</i>	<i>Lecture Hall: Jeppe Vontilius Auditoriet</i>	<i>Lecture Hall: Merete Barker Auditoriet</i>	<i>Lecture Hall: William Scharff Auditoriet</i>
Session A.iii Model development to improve understanding Chairs: Jenny Deakin (Ireland) & Marco Acutis (Italy)	Session D.iv Tools at national scale for improving water quality Chairs: Frank Coale (USA) & Berit Hasler (Denmark)	Session HI.ii Policies for improving water quality Chairs: Wibke Christel (Denmark) & Bob Middleton (United Kingdom)	FAIRWAY Workshop ii Chairs: Gerard Velthof (the Netherlands)
13:45-14:00 #059_Højberg Improvements in catchment scale modelling for assessing nitrate reduction	13:45-14:00 #248_Hankin A new national rainfall-runoff and water quality model for England	13:45-14:00 #261_Vernier A decision-making information system to support the governance of territories with water issues	13:45-13:50 Intro
14:00-14:15 #111_Singh The landscape nitrogen attenuation index: A framework for effective land use practices and water quality outcomes	14:00-14:15 #230_Buckley The disconnect between nutrient demand and supply at farms scale: The potential of better nutrient management to achieve better outcomes	14:00-14:15 #094_Kronvang A novel indicator-based approach to assess and plan for multifunctional land consolidation	13:50-14:05 #135_de Vries The role of Multi-Actor Platforms in addressing challenges to protect drinking water supplies
14:15-14:30 #112_McCloskey Confronting the extremes, droughts and cyclonic rains: Modelling fine sediment export across the Great Barrier Reef catchments, Australia	14:15-14:30 #136_Djodjic Optimizing placement of countermeasures at landscape scale as low-hanging fruits to reduce phosphorus losses	14:15-14:30 #100_Konrad Ground- and surface-water quality: Spill-over effects and spatial trade-offs	14:05-14:20 #030_Pintar Evaluation of barriers and issues in providing integrated scientific support for EU policy
14:30-14:45 #113_Dougall Confronting the extremes, droughts and cyclonic rains: Modelling dissolved inorganic nitrogen export across the Great Barrier Reef catchments, Australia	14:30-14:45 #172_Thomas Improving national mapping of critical source areas of phosphorus and nitrogen losses in Irish agricultural catchments to support policy	14:30-14:45 #237_Gertz Catchment officers – a new water management approach in Denmark	14:20-14:45 Discussion A discussion and ranking of the main barriers, bottlenecks, and challenges for creating safe drinking water resources
14:45-15:00 #114_Friedel A novel data-driven workflow for 3D predictions of groundwater redox status in agriculturally-dominated regions of New Zealand	14:45-15:00 #069_Hansen, B Hydro-geochemical controls on nitrate response in shallow groundwater to agricultural N regulation in Denmark	14:45-15:00 #188_Verguts Scientific research to support agricultural nutrient management policy in Flanders	14:45-15:10 Discussion A discussion and ranking of the main measures, tools, and incentives for creating safe drinking water resources

15:00-15:15 <void slot, to be used by session chairs>	15:00-15:15 #036_Bedford Regional-scale stream health responses to riparian management	15:00-15:15 #254_Daatselaar Towards more land-based dairy farming in the Netherlands: Effects on nutrient surpluses and nitrate concentration	15:10-15:15 Conclusions and next steps
15:15-16:00 Coffee break, including 15 minutes' walk to Mathematics building			
<i>Lecture Hall: Mathematics Building Auditoria E</i>			
Session D.v: Assessment of national or regional policy: effectiveness of programmes of measures on water quality on a regional and national scale Chairs: Phil Jordan (United Kingdom) & Claudia Heidecke (Germany)			
16:00 – 16:20 #071_Coale Three decades of effort to attain nutrient loading reduction goals in Chesapeake Bay, USA			
16:20 – 16:40 #208_Rosendorf Regional, seasonal and inter-annual patterns of phosphorus and nitrogen runoff from agricultural watersheds in the Czech Republic after period of fertilization change			
16:40 – 17:00 275_Blicher-Mathiesen A new targeted regulation of agriculture in Denmark			
<i>Lecture Hall: Lakeside building (15 minutes' walk)</i>			
17:15 – 18:45 Poster session : All Themes (with refreshments during the session)			
End of presentations of Tuesday, 4 June 2019			

Wednesday, 5 June 2019

07:30-17:30 Registration / Conference secretariat desk open PowerPoint presentations to be uploaded at the conference secretariat desk			
<i>Lecture Hall: Mathematics Building Auditoria E</i>			
Session HI.iii : Decision-making on and implementation of Programmes of Measures: the role of stakeholder input and science in policy decision-making, and social and economic incentives and regulatory mandates that drive implementation (carrots and sticks) Chairs: Ken Taylor (New Zealand) & Berit Hasler (Denmark)			
08:30-09:00 #271_Christel "Targeting regulation": The challenge of addressing varying nutrient reduction need in aquatic bodies, while maintaining equal regulatory constraints for farmers			
09:00 – 09:20 #175_Olofsson A voluntary initiative for long-term changes in farmer attitude and behaviour			
09:20 – 09:40 #109_Harter Nitrate contamination of groundwater from agriculture and other land uses in California's Central Valley: An evolving regulatory landscape			
09:40 – 10:00 #018_Wendland Agricultural nitrogen reduction requirement to reach groundwater and surface water quality targets in North Rhine-Westphalia (NRW), Germany			
10:00-10:45 Coffee break, including 15 minutes' walk to Lakeside building			
<i>Lecture Hall: Eduard Biermann Auditoriet</i>	<i>Lecture Hall: Jeppe Vontilius Auditoriet</i>	<i>Lecture Hall: Merete Barker Auditoriet</i>	<i>Lecture Hall: William Scharff Auditoriet</i>
Session A.iv Data analysis for improving understanding & Importance of transport pathways Chairs: Carl Bolster (USA) & Gunnar Lischeid (Germany)	Session B.iii Set up of monitoring networks Chairs: Jenny Deakin (Ireland) & Joachim Rozemeijer (Netherlands)	Session HI.iv Farmers involvement in water quality improvement Chairs: Stina Olofsson (Sweden) & Natalie Phillips (United Kingdom)	Special Session 1.i Land and water management for a sustainable bioeconomy Chairs: Eva Skarbøvik (Norway), Jan Vermaat (Norway), Brian Kronvang (Denmark)

10:45-11:00 #097_Pohle Spatio-temporal variability of water quality determinants in Scottish catchments	10:45-11:00 #068_Bönsch Emissions from drained agricultural field: Detecting subsurface drainages by remote sensing	10:45-11:00 #091_Thorburn Insurance as a tool to help farmers mitigate nitrogen pollution from intensive cropping	10:45-11:00 Introduction
11:00-11:15 #131_Hernández-García Assessing current flow connectivity indexes to understand differences in sediment and nutrient dynamics in two Mediterranean watersheds in Navarre (Spain)	11:00-11:15 #142_Fraters Monitoring spring water quality to assess the changing impact of agricultural on the water environment: Case study from the loess region of the Netherlands	11:00-11:15 #243_Petersen Groundwater protection in Denmark: Getting to yes using BIG data	11:00-11:15 #095_Collentine_#158_Futter BIOWATER systems attribute survey: Impacts of the bioeconomy on land use and land management in the Nordic countries in the year 2050
11:15-11:30 #147_Warne Land-use as a predictor of pesticide concentrations, mixture complexity and mixture toxicity	11:15-11:30 #231_Bikse New data on nitrate distribution in shallow groundwater for optimization needs of national nitrates groundwater monitoring in Latvia	11:15-11:30 #063_van_den_Brink Constraining and enabling factors in implementing agricultural innovations in groundwater protection areas in Overijssel, the Netherlands	11:15-11:30 #153_Kyllmar Source apportionment of N and P in small agricultural monitoring catchments as a basis for improved classification of river basins
11:30-11:45 #041_Ezzati Investigating the ditch system in retaining and mobilizing nutrients in an intensive dairy farm	11:30-11:45 #224_Burger Benefits of a participatory approach to monitoring surface water quality	11:30-11:45 #221_Maxwell The power of collaboration and partnerships, moving from problems to solutions through community engagement and landowner participation: The success story of Whangawehi Stream, New Zealand	11:30-11:45 #031_Vermaat Applying ecosystem services as a framework to analyze the possible effects of a green bioeconomy shift on Nordic catchments
11:45-12:00 #043_Srinivasan A biophysical framework to describe the linkages between land use and water quality impacts	11:45-12:00 #268_Guillemot Controls on the spatial and seasonal variations of nutrient concentrations (C, N, P) of headwater catchments at regional level	11:45-12:00 #007_Tent Participation of public groups in brook restoration, a vital tool to improve lively habitats: Urban and rural examples of the metropolitan region of Hamburg, Germany	11:45-12:00 #053_Skarbøvik Setting reference conditions for nutrients in Nordic surface waters: Methodologies, levels, uncertainty and management implications
12:00-12:15 #083_Fresne Mobilisation, pathway and delivery experiments to understand the role of colloidal P transfer to groundwater	12:00-12:15 <void slot, to be used by session chairs>	12:00-12:15 #009_McCormack A Technology Acceptance Model of factors influencing farmer adoption of nutrient management practices	12:00-12:15 #183_Stutter Typing catchments for risk and resilience factors in P pollution and waterbody impacts: Supporting landscape planning

12:15 – 13:45 Lunch (no walk)			
<i>Lecture Hall: Eduard Biermann Auditoriet</i>	<i>Lecture Hall: Jeppe Vontilius Auditoriet</i>	<i>Lecture Hall: Merete Barker Auditoriet</i>	<i>Lecture Hall: William Scharff Auditoriet</i>
Session A.v Organic and inorganic substances in the environment & transfer processes Chairs: Piet Groenendijk (Netherlands) & Phil Jordan (United Kingdom)	Session F.ii Technical & chemical measures to reduces losses Chairs: Dominik Zak (Denmark) & Roland Stenger (New Zealand)	NO SESSION	Special Session 1.ii Land and water management for a sustainable bioeconomy Chairs: Eva Skarbøvik (Norway), Jan Vermaat (Norway), Brian Kronvang (Denmark)
13:45-14:00 #133_Coxon Agro-chemicals in Irish groundwaters: Investigating the occurrence of veterinary drugs and their transformation products	13:45-14:00 #085_Levine Quantifying the ability of Detainment Bunds to attenuate sediments and nutrients in surface runoff from grazed pasture in the later Rotorua catchment	13:45-14:00	13:45-14:00 Introduction
14:00-14:15 #210_Holten The effect of freezing and thawing on water flow and MCPA leaching in partially frozen soil	14:00-14:15 #086_Feyereisen Denitrification bioreactors as a structural water quality measure at catchment scale: Performance and lessons learned	14:00-14:15	14:00-14:15 #119_Kaste Counteracting effects of climate and land-use change on riverine element run-off? A combined analysis of Norwegian natural and agricultural headwater catchments and large rivers' monitoring data
14:15-14:30 #229_Gassmann PFAS – a new class of emerging agrochemicals?	14:15-14:30 #121_Burbery Denitrification wall trial in a gravel aquifer	14:15-14:30	14:15-14:30 #247_Stenrød Glyphosate and the sustainability of cropping practices in northern climate
14:30-14:45 #252_Rakovic Unravelling the relative importance of different phosphorus forms for transfer processes at the agricultural catchment scale	14:30-14:45 #171_Pacholski The role of nitrification inhibitors to control reactive N transport from the root zone	14:30-14:45	14:30-14:45 #203_Dynes Development of next generation farming systems using a multi-criteria decision making framework

14:45-15:00 #287_Mourot Farm nutrient losses to groundwater in the West Matukituki Valley, Lake Wanaka catchment (Otago region, New Zealand)	14:45-15:00 #215_Vandermoere Reducing phosphorus (P) losses from drained agricultural fields with iron coated sand (- glauconite) filters	14:45-15:00	14:45-15:15 Discussion
15:00-15:15 <void slot, to be used by session chairs>	15:00-15:15 #055_Sofa Water and soil quality in Mediterranean orchards managed with sustainable or conventional systems	15:00-15:15	
15:15-16:00 Coffee break, including 15 minutes' walk to Mathematics building			
<i>Lecture Hall: Mathematics Building Auditoria E</i>			
Session D.vi Assessment of national or regional policy: effectiveness of programmes of measures on water quality on a regional and national scale Chairs: Marianne Bechmann (Norway) & Frank Coale (USA)			
16:00 – 16:20 #214_Thorling Thirty years of national monitoring of groundwater and surface water in Denmark			
16:20 – 16:40 #288_Middleton Evidence-led: Improving catchment management through the use of evidence			
16:40 – 17:00 #227_Deakin From science to action – the Irish approach to improving water quality			
<i>Lecture Hall: Lakeside building (15 minutes' walk)</i>			
End of presentations of Wednesday, 5 June 2019			

Thursday, 6 June 2019

07:30-15:30 Registration / Conference secretariat desk open PowerPoint presentations to be uploaded at the conference secretariat desk			
<i>Lecture Hall: Mathematics Building Auditoria E</i>			
Session G.ii & HI.v Managing protected areas for water supply and nature conservation & Decision-making on and implementation of Programmes of Measures Chairs: Thomas Harter (USA) & Wibke Christel (Denmark)			
08:30 – 09:00 #132_Taylor New Zealand's "Our Land and Water" National Science Challenge: Is it making a difference?			
09:00 – 09:20 #176_Hasler Cost-effective implementation of agri-environmental schemes for nutrient abatement and climate mitigation: A case study in the Baltic Sea region			
09:20 – 09:40 #279_Gascuel-Odoux Science-policy interfaces on two cases: Drinking water and eutrophication, from the French experience			
09:40 – 10:00 #259_Phillips Investigating atmospheric and terrestrial exceedances at GWDTes and implications for regulation			
10:00-10:45 Coffee break, including 15 minutes' walk to Lakeside building			
<i>Lecture Hall: Eduard Biermann Auditoriet</i>	<i>Lecture Hall: Jeppe Vontilius Auditoriet</i>	<i>Lecture Hall: Merete Barker Auditoriet</i>	<i>Lecture Hall: William Scharff Auditoriet</i>
Session B.iv Challenges in monitoring of surface waters Chairs: Joachim Rozemeijer (Netherlands) & Piet Groenendijk (Netherlands)	Session E.i Management measures to improve water quality Chairs: Lærke Thorling (Denmark) & Dominik Zak (Denmark)	Session HI.vi Regulations as tool for water quality improvement Chairs: Ken Taylor (New Zealand) & Chantal Gascuel-Odoux (France)	NO session
10:45-11:00 #006_Bieroza Integrating high- and low-frequency water quality monitoring at the catchment scale	10:45-11:00 #107_Navarrete Decreased nitrate leaching when lactating cows graze plantain (<i>Plantago lanceolata</i>) pastures	10:45-11:00 #073_Willis Nitrogen limit-setting and allocation of discharge rights in New Zealand	

11:00-11:15 #152_Stott Automated high frequency and near-real time monitoring of microbial dynamics for assessing health risks from land use on surface waters in Aotearoa / New Zealand	11:00-11:15 #047_Merchán Irrigation implementation promotes a new nitrate vulnerable zone in the Cidacos River Watershed (Navarre, Spain)	11:00-11:15 #265_De Nies From a voluntary sustainable fertilisation programme towards a dual policy with mandatory guidance if needed	
11:15-11:30 #096_van't Veen Is it possible to use stream measurements to calculate nitrogen emissions from agricultural areas in Danish catchments? Investigating the possibility to create a nitrogen emission map for catchments	11:15-11:30 #236_Pedersen Cover crop effect on nitrate leaching following application of solid animal manure and mineral fertilizer	11:15-11:30 #066_Te Winkel The potential role of natural capital and ecosystem services in stopping peat oxidation in the Dutch province of Flevoland	
11:30-11:45 #199_Kardos Spatio-temporal optimization of monitoring networks with respect to water body classification	11:30-11:45 #273_Prins Farm management, nutrient results and water quality with focus on maize	11:30-11:45 #012_Vehanen Improving the status of river fish communities in changing climate: From in-stream habitat restoration to catchment management	
11:45-12:00 #284_Hitzfeld Small, vulnerable and largely ignored in the past – UBA initiative for an event-driven monitoring of pesticide residues in small surface waters in German agricultural landscapes	11:45-12:00 #051_Curk Modelling potential for sustainable plant production: A case study of apple orchard in south-eastern Slovenia	11:45-12:00 #057_Jensen Variations in the Danish permit practice and the resulting differences in urban discharge of storm water to the recipients	
12:00-12:15 <void slot, to be used by session chairs>	12:00-12:15 <void slot, to be used by session chairs>	12:00-12:15 <void slot, to be used by session chairs>	
12:15 – 13:45 Lunch, including 15 minutes' walk to Mathematics building			
<i>Lecture Hall: Mathematics Building Auditoria E</i>			
Session E.ii & F.iii Improving water quality by farm management practices and by establishing eco-technological mitigation measures Chairs: Patricia Chambers (Canada) & Frank Wendland (Germany)			
13:45 – 14:15 #052_Bechmann Soil tillage effects on water quality in a cold climate			

14:15 – 14:35 #194_Schönhart Effectiveness of management measures to reduce nitrogen loads from agriculture in temperate regions under climate change
14:35 – 14:55 #081_Moore Long-term effects of grazing management and buffer strips on phosphorus runoff from pastures fertilized with poultry litter
Closure
15:00 – 15:30 Closure session: Dico Fraters (RIVM, the Netherlands)
End of official conference programme

Poster session (98 posters)

Tuesday, 4 June, 17:15-18:45, combined with snacks and drinks

Posters of Theme A (25), Theme B (11), Theme C (10) and Theme D (4), Theme E (18), Theme F (8), Theme G (6), Theme HI (8) and Special session 1 (8)

Theme A Increasing our understanding of 'systems function': research to increase understanding and improving modelling of the hydro(geo)logical, geochemical and biochemical reality (25 posters)

#011_Jiang

Effects of stream nitrate data frequency on watershed model performance and prediction uncertainty

#64_Glendell

Applying complementary modelling approaches to link phosphorus pollution and ecological impact – an example from Scotland

#072_Zhang

SSIM – A deep learning approach for recovering missing time series sensor data

#082_Gair

Quantifying groundwater nitrogen pollution risk using statistical emulation of a process-based water quality model: An example for Scotland

#087_Bolster

Evaluating the potential for calculating the degree of P saturation from ammonium lactate extractable Al, Fe, and P

#90_Holbak

Calibration and validation of the Daisy model for predicting pesticide leaching

#098_Kim

Complex nitrate pathways in two Danish catchments: Importance for the future targeted N regulation of agriculture

#110_Singh

Benign denitrification in shallow groundwaters

#126_Stenger

Critical Pathways: Unravelling sub-catchment scale nitrogen delivery to waterways

#138_Mehrtens

Tracking veterinary pharmaceuticals: Combined field and laboratory experiments on the fate of veterinary pharmaceuticals in the environment

#148_Brussée

Relationship between organic matter in sandy soil layers and nitrate concentrations in groundwater

#156_Simpson

Meta-analysis of stream sediment phosphorus buffering at baseflow

#166_Yang

In-stream autotrophic nitrate uptake modelling at river network scale based on continuous high frequency data

#170_Bartosova

Exploring global sediment sources, processes, and impacts with a global dynamic model

#173_Dupas / Gascuel

Data-driven quantification of nitrate retention and transit time distribution in agricultural catchments

#177_Ghaffar

Spatio-temporal evaluation of a semi-distributed hydrological water quality model in central Germany

#190_Owens

Long-term spatial distribution of P and other elements following poultry litter applications

#191_Burke

On the fate of veterinary pharmaceuticals in the unsaturated zone – a lysimeter study

#204_Read

Rainfall simulation study to assess nitrogen and phosphorus loads in runoff and leachate from Marietta soil amended with poultry litter and cattle manure

#205_Thodsen

Phosphorous content in Danish riverbanks

#241_Rolighed

Parameters for a simple Langmuir-based Phosphorus Leaching model

#258_Zhou

The effect of river geomorphology on nitrate retention at network scale in Bode catchment, central Germany

#276_Mezei-Giber

Quantification of nitrate reduction potential and kinetics of soil samples obtained from sandy aquifers, Schleswig-Holstein, Germany

#302_Lannergård

Internal loading from stream bed sediment: Insignificant or a missing link?

#305_Ahring

Assessing diffuse N inputs into surface waters using a SWAT inverse modelling approach

Theme B Water quality monitoring: improving monitoring, data management and combined monitoring-modelling to support the evaluation of programmes of measures (11 posters)

#002_Putthividhya

Long-term monitoring-modelling of agricultural contamination with nitrate in groundwater systems of Thailand

#029_Steuer-Schoo / Dieser

Indicators for the early detection of nitrate loads in soil under crop production: A demonstration project

#032_Manley

A laboratory scale sterol degradation study for slurry biomarkers and nutrient associations

#122_Holm

Combining information from aerial photography with root zone and drainage water to document how areas with limited growth led to higher nitrogen loss

#129_Marttila / Lepistö

Nordic bioeconomy and surface water quality, how do they interact?

#150_Turner

Monitoring real-time sediment and nitrate in catchments for the protection of the Great Barrier Reef

#197_Urbanc

Estimation of nitrate leaching from agricultural fields by means of mini lysimeters

#198_Vu

Application of calibrated reagent-free spectrophotometry in determining nitrate in river water

#223_Thorling

Representative monitoring of the impact of land use on groundwater quality

#250_Retike

Assessment of seasonal changes in spring water chemistry for national groundwater monitoring optimisation in Latvia

#255_van Leeuwen / Daatselaar

Improving representativeness of national and regional outcomes on nitrogen surpluses and water quality by weighing of farm results

Theme C Impact of climate change on land use and water quality: assessment of impact on groundwater and surface water quality (10 posters)

#028_Botero-Acosta

Contemporary and future effects of environmental stressors on non-point source pollution in an intensively managed watershed

#048_Zhang

Modelling climate change impacts on crop yield and P loss in a tile-drained field of Lake Erie basin

#079_Molina-Navarro

Modelling the impact of climate and land use changes in the ecological status of the Odense Fjord basin's streams using Bayesian Belief Networks

#127_Mehdi

Sustainable nitrogen management under climate change in Austria

#134_Friedel

Identifying climate- and land-use change signals in a freshwater ecosystem, Upper Illinois River Basin, USA

#151_Riley

Love that dirty water? Investigating the effects of climate change on water quality in the Charles River Watershed

#164_Rankinen

Effects of climate and land use change on water quality in Finnish rivers

#165_Jost

Soil functions assessments as a means for sustainable water and land use management planning: A regional scale exploration of their sensitivity toward processes of global change

#196_Rozemeijer

Climate variability effects on chemical and ecological quality of groundwater, lakes, rivers, and coastal waters in the Netherlands

#207_Li

Hydrology and water quality observed at the outlet of a small agricultural watershed in Atlantic Canada: Effects of climate and land use

Theme D Assessment of national or regional policy: effectiveness of programmes of measures on water quality on a regional and national scale (4 posters)

#077_Strenge

PhosFate: A model for cost-effective management of phosphorous emissions in watersheds by the localisation of emission hotspots

#103_Quaglia

A model for spatial targeting of landscape measures to reduce impact of pesticides in surface water

#108_Kouba

Total salt loads and specific thresholds: Can two California regulatory schemes work together?

#270_de Koeijer / Hoogeveen

The economic and environmental effects of derogation on dairy farms in the

Theme E Improving water quality by farm management practices: research (monitoring and modelling) at plot, field and catchment scales to quantify the effects of farming practices and changes in land use (18 posters)

#040_Wey

Monitored risk management for nitrate leaching from arable fields above a groundwater aquifer

- #045_Valkama
Controlling of nitrogen leaching through conservation agriculture in Kazakhstan
- #049_Jabro
Tillage effects on nitrate leaching through unsaturated zone under irrigated corn-soybean production
- #050_Goeller/Tanner
Siting, scaling, and selecting edge-of-field tools to attenuate contaminants across agricultural landscapes
- #060_Li
Agricultural nitrogen emissions in response to historical shifts (1980s-2010s) of fertilizer application in the Taihu Lake Basin, China
- #076_Frick
Tracing the fate of ¹⁵N-labelled animal manure in the environment
- #084_Liang
Mitigation of nitrogen leaching from potato-based rotations in Atlantic Canada: New insights from a nitrogen budget and dynamic analysis
- #088_Vogeler
Catch crops for increasing nitrogen use efficiency in cropping systems
- #099_Wheeler
Uncertainty in a farm-scale model for estimating N leaching
- #159_Vuaille
Effect of pesticide application timing on pesticide leaching to drains: predicting the optimum application date
- #192_Ashworth
Developing best management strategies for reducing soluble phosphorus losses from poultry litter in grazing systems
- #193_Reynaert
Estimate of nitrate leaching out of the root zone of irrigated potato considering the variability in soil properties within the field
- #234_Balashova
How effective are catchment-based approaches in reducing metaldehyde loss to water supply at a catchment scale
- #278_Young
Development of a decision support framework to evaluate the impacts of agricultural management on crop, soil, and environmental quality
- #285_Allen
Fertilizer N rates to optimize bioenergy feedstock production and water quality in semi-arid environments
- #291_Paneru
Effects of agricultural land use on nitrate concentrations at catchment scale
- #296_Bauwe
Land management governs nitrate losses: A modelling study

#299_Houlbrooke

Contaminant losses from contrasting peat soil types and farm dairy effluent regimes

Theme F Improving water quality by establishing eco-technological mitigation measures: development, testing, implementation and operation at plot, field and catchment scales to quantify the effects of structural measures (*8 posters*)

#033_Dhaese

Nitrate removal rate in a 'in-ditch'-woodchip bioreactor in Flanders (Belgium)

#128_Burbery

In-stream woodchip denitrifying bioreactor trial, New Zealand

#139_Jordan

Short rotation coppice willow for waste-water effluent irrigation – experience and considerations for future assessment

#178_Stutter

Effective targeting of novel riparian buffer designs

#212_Vinten

Development of a hydraulic model for water management in the Lunan Water, Scotland

#233_Jakubínský

Importance of riparian habitats lining small streams to improve the soil water retention capacity of agricultural landscape

#264_Kjaergaard

Differentiated landscape based strategies for optimized implementation of drainage filter technologies targeting agricultural nutrient losses

#304_Tavernier

Preventing point source pollution by installing a public filling place

Theme G Managing protected areas for water supply and nature conservation: risk assessment techniques, monitoring and modelling of water quality and quantity for the protection of (a) water resources for drinking water supply, and (b) groundwater dependent terrestrial ecosystems (*6 posters*)

#010_Fletcher

Implementing irrigation best management practices for water resource protection in central Florida

#042_Fletcher / Momol

Florida Fertilizer Ordinance mobile web app matches work locations to applicable regulations

#080_Zupanc / Curk

Water quality in vulnerable and shallow aquifers under intensive vegetable production zone

#140_Jordan / Cassidy

A catchment scale monitoring solution for MCPA: Time and space considerations

#143_Krogh

Groundwater protection in Denmark; Target regulation as a supplement to general protection regulation

#200_Dickey / Harter

Quantifying nitrate leaching from Central Valley irrigated lands with the Soil & Water Assessment Tool (SWAT)

Themes HI Decision-making and implementation: the role of stakeholder input and science in policy decision-making and social and economic incentives and regulatory mandates that drive implementation (carrots and sticks) (8 posters)

#014_Cameron

The increasing risk of imidacloprid in Australia's Great Barrier Reef catchments

#021_Chivers

Utilising hard evidence tools to improve farm advice relating to water quality

#046_Momol / Clem

Florida's Green Industries Best Management Practices training promotes sustainable urban landscapes

#181_Carnohan

Integrating stakeholder narratives and simulation modelling to support water resource management in data-scarce environments

#232_Graversgaard

Lessons learned from groundwater protection on the Island of Tunø: Are successful mitigation of nitrate exceedances determined by both farmer commitment as well as enforcement mechanisms?

#251_Verguts

Action programme in execution of Nitrates Directive (MAP6) in Flanders: Towards an intensified tailor-made area specific approach

#269_Kyllmar

Implementation of water retention measures in catchments - a multi-functional and multi-actor approach

#286_Lescot

Tackling water issues in the Charente River basin through greater cohesion between coastal and inland activities: the COASTAL Project

Session S1: Special session on Land and water management for a sustainable bioeconomy (8 posters)

#008_Wenng

Effects of land use on nutrient losses from small agricultural catchments in Norway

#093_Kronvang

A conceptual mini-catchment typology for analyzing eutrophication risks in surface waters in the Nordic countries

#146_Carstensen

Efficiency of measures reducing nutrient losses from agricultural drainage

#155_Blankenber

Bufferzones along streams: Good for environment but bad for food production?

#184_Hansen, G.

Comparing various irrigation, plant, and turfgrass combinations to improve water conservation and quality in Florida's urban landscapes

#201_King

Next generation farming systems: Transformation by design

#219_Futter

Phosphorus mass balances in Swedish agricultural catchments

#306_Hashemi

Analysis of land use change for nitrate reduction to obtain multiple benefits for water quality and nature in a Danish catchment