

# **21st Century Watershed Technology Conference and Workshop 2014**

Improving Water Quality and  
the Environment

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## 21st Century Watershed Technology Conference and Workshop Improving Water Quality and the Environment Conference Proceedings, 3-6 November 2014, University of Waikato, New Zealand

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1. 

[Payment for Watershed Services: Application in Hydropower Generation in the Cordilleras, Philippines](#)  
**Authors:** Corazon L. Abansi, Consuelo C. Doble, Alicia G. Follusco  
**Keywords:** payment for environmental services, run-of-river type hydropower, indigenous community  
**DOI:** 10.13031/ntcw.2014-001
2. 

[Challenges and Progress in Distributed Watershed Modeling: Applications of the AgroEcoSystem-Watershed \(AgES-W\) Model](#)  
**Authors:** James C. Ascoug II, Mark D. Tomer, Timothy R. Green, Olaf David, Kevin J. Cole, Holm Kipka, Sarah A. Porter  
**Keywords:** Watershed model, Water quality modeling, Model evaluation, Streamflow, Nitrogen, Object Modeling System, Conservation systems.  
**DOI:** 10.13031/ntcw.2014-002
3. 

[Watershed influence on factors responsible of cyanobacteria proliferation episodes in lacustrine waters \(Brittany, Western France, Europe\)](#)  
**Authors:** Estelle Baurès, Olivier Thomas, Frédéric Pitois  
**Keywords:** Cyanobacteria, lake morphology, water chemistry, risk characterization.  
**DOI:** 10.13031/ntcw.2014-003
4. 

[Comparison Watershed Selection When Applying the AllForX Approach for Sediment TMDL Development](#)  
**Authors:** Brian Benham, Kristine Bronnenkant, Gene Yegow, Zach Easton, Jason Hill  
**Keywords:** Watershed modeling, sediment impairment, TMDL, water quality.  
**DOI:** 10.13031/ntcw.2014-004
5. 

[Assessing the Performance of HSPF When Using the High Water Table Subroutine to Simulate Hydrology in a Low-gradient Watershed](#)  
**Authors:** Brian Benham, Scott Forrester, Karen Kline, Kevin McGuire  
**Keywords:** modeling, HSPF, high water table, uncertainty  
**DOI:** 10.13031/ntcw.2014-005
6. 

[Watershed Assessment Model \(WAM\): Florida Applications](#)  
**Authors:** Adelbert (Del) B Boltcher, Andrew I James  
**Keywords:** Watershed modelling, hydrology, water quality, GIS, nutrient sources and cycling, nitrogen, phosphorus, nutrient assimilation, land use, grid based  
**DOI:** 10.13031/ntcw.2014-006
7. 

[Impact of Heavy Rainfalls on Global Nutrients export During the Fertilization Period in a Coastal Agricultural Watershed](#)  
**Authors:** Jean Causse, Aude-Va'erie Jung, Olivier Thomas, Estelle Baurès  
**Keywords:** Nutrient export, carbon and nitrogen fluxes, "at-risk" situations, floods, fertilization, UV online analyzer  
**DOI:** 10.13031/ntcw.2014-007

8.

An Integrated Catchment Modelling Approach for Exploring Water Allocation and Nutrient Limit Setting Policies

**Authors:** Lydia T Cebin, Phillip W Jordan, Nic Conland, Michelle Sands, Richard Cresswell, Andrew Herron

**Keywords:** Watershed management, water resource allocation, nutrients, groundwater modeling, hydrologic modeling, eWater Source.

**DOI:** 10.13031/wtcw.2014-008

9.

Modelling the Impacts of mitigation on sediment and nutrient loads to the Kaipara Harbour

**Authors:** Annette Semadeni-Davies, Kelly May

**Keywords:** Catchment scale modelling, GIS, planning, sediment, nutrients

**DOI:** 10.13031/wtcw.2014-009

10

A Fair Irrigation Scheduling Method Prioritizing on the Individual Needs of the Crops and Infrastructure Limitations

**Authors:** Dilini K. De/goda, Maika N. Ha/gemuge, Hector Malano, Syed K. Saleem

**Keywords:** optimization, irrigation, small networks, neighbor fields

**DOI:** 10.13031/wtcw.2014-010

11.

Pollution and Siltation of Rivers in the Western Highlands of Cameroon: a Consequence of Farmland Erosion by Runoff

**Authors:** Djoukeng Henri Gritseur, Tankou Christopher Mubeteneh, Degré Aurore

**Keywords:** Pollution, siltation, watershed Méloh, water, Cameroon

**DOI:** 10.13031/wtcw.2014-012

12

Integrated Modelling with MIKE SHE: Successfully Building Sub-Regional Scale Models in Canterbury

**Authors:** Andrew L Druzynski, Patrick (or initial) Durney, Fouad (or initial) Alkhaier

**Keywords:** MIKE SHE, Groundwater Surface Water interaction, MIKE 11, Water Balance.

**DOI:** 10.13031/wtcw.2014-013

13

Effects of sampling frequency and calculation methods on estimation of annual nutrient loads: A case study of Manawatu River, New Zealand

**Authors:** Ahmed Elwan, Maree Clark, Jon Roygard, Ranvir Singh, David Home, Brent Clothier

**Keywords:** Nutrients, Load estimation methods, Uncertainty, Sampling frequency, Water quality.

**DOI:** 10.13031/wtcw.2014-014

14.

Tool for Obtaining Projected Future Climate Inputs for the WEPP and SWAT Models

**Authors:** Dennis C. Flanagan, Joseph Trotochaud, Carlington W. Wallace, Bernard A. Engel

**Keywords:** Modeling, climate generation, climate change, soil erosion, CLIGEN, WEPP, SWAT

**DOI:** 10.13031/wtcw.2014-015

15

Meeting water quality and quantity standards to sustain cultural values

**Authors:** G R Harmsworth, S Awatere, J Procter

**Keywords:** Indigenous Maori, cultural values, matauranga Maori, Maori knowledge, catchments, monitoring, water quality standards, limits

**DOI:** 10.13031/wtcw.2014-016

16

Communication of temporal data in the water domain: Standards and vocabularies – an international context

**Authors:** Sean Hodges, Maree Clark, Brent Watson

**Keywords:** Data exchange, OGC, SOS 2.0, WaterML 2.0, LAWA

**DOI:** 10.13031/mtcw.2014-017

17.

The Potential Of Greywater Reuse In Irrigation

**Authors:** ADESOJI TUNBOSUN JAIYEOLA, JOSEPH KAPUKU BWAPWA

**Keywords:** Greywater, irrigation, wastewater, reuse, microorganisms, household.

**DOI:** 10.13031/mtcw.2014-018

18.

Use of Pervious Concrete as Gravity Filter

**Authors:** Hansa Satish Jeswani, Ninad Oke, Parth Choksi, Arney Naik, Nikita Mahapatra, Rumana Sayed

**Keywords:** Pervious Concrete, Gravity Filtration, Turbidity, Total Solids, Most Probable Number

**DOI:** 10.13031/mtcw.2014-019

19.

Mapping of Arsenic Pollution In Burkina Faso Using a New Field Measurement Technique

**Authors:** Franck LALANNE, Anja BRETZLER, Marcelle AHISSAN, Christian Zurbrugg

**Keywords:** Arsenic, Burkina Faso, Field Measurement Technique, Pollution Mapping

**DOI:** 10.13031/mtcw.2014-020

20.

Extending a Monte Carlo Dairy Farm Stream E. coli Model to Catchment Scale

**Authors:** Graham B McBride, Richard W Muirhead

**Keywords:** Human health risk, E. coli, dairying, wild birds, attenuation, pathogens, watershed.

**DOI:** 10.13031/mtcw.2014-021

21.

"Disconnects and Tipping Points" Crossing the Sites of Economics, Ecology and Reality: Is production at a profit, or a cost?

**Authors:** Alison Dawes, Barrie J Ridler, Roy McCallum

**Keywords:** Disconnects, Tipping Points

**DOI:** 10.13031/mtcw.2014-023

22.

MitAqator™: a Farm Scale Tool to Estimate and Mitigate the Loss of Contaminants from Land to Water

**Authors:** R W McDowell, G M Lucci, G Peyroux, H Yoswara, N Cox, M Brown, D Wheeler, N Watkins, C Smith, R Monaghan, R Muirhead, W Calto, J Risk

**Keywords:** Best Management Practices (BMPs), E. coli, Nitrogen, Phosphorus, Sediment

**DOI:** 10.13031/mtcw.2014-024

23.

Adding progress-focused conversations to Farm Water Quality Action Plans

**Authors:** Lucy A McKergow, Tony Faulkner

**Keywords:** Water quality, Solutions Focus, farm plan, OSKAR

**DOI:** 10.13031/mtcw.2014-025

24.

Using Geospatial Soil Information for Targeted Water and Fertigation Application

**Authors:** Caroline L McKinney

**Keywords:** Soil information systems, SIS, geospatial soil information, geospatial soil data, precision irrigation, agriculture, agriculture products, soil properties, soil characterization, irrigation modeling, plant available water, nutrient holding capacity

**DOI:** 10.13031/mtcw.2014-026

25.

Integrating Microbial Water Quality Impacts into Existing Decision Support Tools

**Authors:** Richard W Muirhead

**Keywords:** Agriculture, Best Management Practices (BMPs), E. coli, Effluents, Farm, Nonpoint, Direct inputs

**DOI:** 10.13031/ntcw.2014-027

26.

Mitigating nutrient loss from pastoral farmland in the Rotorua lakes district of New Zealand

**Authors:** J Paterson, D Clarke, D Hamilton, T Cairns, M Cairns, E H van Reenen, A Brocksopp

**Keywords:** Lake Rotorua, mitigation, nitrogen, phosphorus, farm plans, water quality, Environment Management System, farming, Detainment Bund, watershed

**DOI:** 10.13031/ntcw.2014-028

27.

Characterization of Denitrification in the Subsurface Environment of the Manawatu River catchment, New Zealand

**Authors:** Aldrin A. Rivas, Ranvir Singh, David J. Horne, Jon Roygard, Abby Matthews, Mike Hedley

**Keywords:** Denitrification, subsurface environment, groundwater, acetylene inhibition method, push-pull test, Manawatu River catchment, New Zealand

**DOI:** 10.13031/ntcw.2014-029

28.

CLUES modelling of E. coli in the upper Waikato River catchment

**Authors:** Annette F. Semadeni-Davies, Sandy Elliott

**Keywords:** E. coli, modelling, GIS, SPARROW, mitigation, land use

**DOI:** 10.13031/ntcw.2014-030

29.

A journey towards data maturity: Horizons' water quality data management story

**Authors:** Amy E. Shears, Sean Hodges, Maree Clark

**Keywords:** discrete water quality, NEMS, LAWA, data management, quality coding.

**DOI:** 10.13031/ntcw.2014-031

30.

Simulation of Nutrient Loadings from the Rural Cox Creek Watershed (South Australia) by SWAT as Prerequisite for Land-use Specific Scenario Analysis

**Authors:** Manoj Kumar Shrestha, Friedrich Recknagel, Jacqueline Frizenschaf, Wayne Meyer

**Keywords:** SWAT, Cox Creek watershed, nutrient loadings, Onkaparinga Catchment, scenario analysis.

**DOI:** 10.13031/ntcw.2014-032

31.

Multi-Model Approach for Hydrological Prediction in a Watershed

**Authors:** Shailesh Kumar Singh

**Keywords:** Multi-Model ensemble, Data depth, Hydrological prediction

**DOI:** 10.13031/ntcw.2014-033

32.

Assessment of Surface Water Potential and Land Degradation of Wakai River Basin Using RS & GIS

**Authors:** Pradeep Kumar Singh, Manjeet Singh, Kamal Kishore Yadav

**Keywords:** Water, River basin, Quality, Erosion

**DOI:** 10.13031/ntcw.2014-034

33.

Assessment of the Remediation Potential of Wairarapa Moana Edge Wetlands

**Authors:** James P. S. Suktas, Chris C. Tanner, Andrew Hughes, Philippa Crisp, Ian Gunn

**Keywords:** Wetland restoration, nutrient attenuation, Lake Wairarapa.

**DOI:** 10.13031/ntcw.2014-035

34.

Sources, Fate and Persistence of Catchment Soil Erosion Preserved in Estuarine Sediment Records

**Authors:** Andrew Swales, Max M. Gibbs, Greg Olsen, Ron Ovenden

**Keywords:** Soil erosion, radioisotopes, stable isotopes, fatty acids, sedimentation, sources, fate, estuaries, New Zealand  
**DOI:** 10.13031/ntcw.2014-036

35

Contamination of Newly Emerging Contaminants, Polybrominated Diphenyl Ethers (PBDEs) in Sediments near E-waste Recycling Sites in South China

**Authors:** Nora F. Y. TAM, Hai-chao Zhou, Q H Wu, Yuk-shan Wong

**Keywords:** PBDE congeners, contamination, sediment, e-waste  
**DOI:** 10.13031/ntcw.2014-037

36

Application of Recurrent Neural Networks for predicting water quality constituents of collected runoff from windrow composting pad

**Authors:** Nalaha V. Shim, Ernest W. Tollner

**Keywords:** Water quality, Runoff, Windrow Composting Pad, Cross-correlation, Recurrent Neural Network.  
**DOI:** 10.13031/ntcw.2014-038

37

Framework to Facilitate Conservation Planning in Agricultural Watersheds Using Precision GIS Technologies

**Authors:** M D Tomer, S A Porter, K M B. Boomer, D E James, J A Kostel, E McLeilan

**Keywords:** Water quality, conservation practices, watershed planning, nutrient reduction  
**DOI:** 10.13031/ntcw.2014-039

38

Improving & Parameterising Macronutrient Models for Application of LUCI in New Zealand

**Authors:** Martha Trodahl, Bethanna Jackson

**Keywords:** Water quality, LUCI, nitrogen, phosphorus, modelling  
**DOI:** 10.13031/ntcw.2014-040

39

Investigating source water *Cryptosporidium* concentration, species and infectivity rates during rainfall-runoff in a multi-use catchment

**Authors:** Hayley M Vial, Brooke A Swaffer, Brendon J King, Robert Day, Jacqueline Fritzenschaf, Paul T Monis

**Keywords:** Drinking water, Cryptosporidium, Genotyping, Infectivity  
**DOI:** 10.13031/ntcw.2014-041

40

Land-to-Water Transfer of Nutrients: What Knowledge can be Gained by Combined Analysis of River Water Quality and Flow Records?

**Authors:** Simon J.R. Woodward, Roland Stenger, Reece B Hill

**Keywords:** Stream Monitoring, Concentration, Sampling, Time Series, Streamflow, Linear Regression, Agricultural Runoff, Groundwater Discharge, Environmental Tracer.  
**DOI:** 10.13031/ntcw.2014-042

41

Farm system economic effects of transformation toward sustainable hill country pastoralism: Whatawhata case study

**Authors:** Michael B Dodd, William (Bill) Carlson, Paul Silcock, John Quinn

**Keywords:** integrated catchment management, land use change, New Zealand, pastoral hill country, economic sustainability.  
**DOI:** 10.13031/ntcw.2014-043

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