

5th Biennial Symposium of the International Society for River Science



INTEGRATING MULTIPLE AQUATIC VALUES

19-24 November 2017 | Hamilton, New Zealand



In association with the IPENZ/Water NZ Rivers Group and the New Zealand Freshwater Science Society



Sunday 19 November

8:00am – 3:00pm	Registration Desk Opens		
Workshop	Environmental efficiency of mitigation measures implementation in hydropower: how much do we know? Claudelands: Oakley Room 9:00am – 2:30pm	Developing a decision support framework to guide eutrophication management and nutrient limit setting Claudelands: Arena Lounge Room 10:00am – 2:00pm	NZ Functional Trait Database workshop Claudelands: Brooklyn 2 Room 10:00am – 3:00pm
3:00pm – 6:00pm	pōwhiri (welcome ceremony) at Tūrangawaewae Marae Buses depart from Claudelands (Heaphy Terrace) at 3:00pm and will drop off at the Novotel and Claudelands		
6:00pm – 7:00pm	Pre-Conference Mixer at Novotel Tainui Hotel		

Monday 20 November

7:30am	Registration Desk Opens				
8:45am	Welcome, Housekeeping and Opening Location: Heaphy 1&2				
9:30am – 10:15am	Keynote Speaker – Gerald Kaufmann <i>Catchments, Watersheds, and Basins: The Global Governance and Policy of International River Science</i> Chair – Bob Pentler Location: Heaphy 1&2				
10:15 – 10:45am	Morning Tea - kindly sponsored by Kessels Ecology				
Session	Special Session: Balancing Human and Ecological Objectives in River Restoration	Special Session: Land-use Effects on In-stream Cycling and Retention of Nitrogen and Phosphorus	Climate Change	Connectivity	Aquatic Resource Monitoring
Chair	Gardner Johnston	Lynn Bartsch	Alexander Milner	Eimear Egan	Alton Perrie
Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2
10:45am – 11:00am	Balancing human and ecological objectives in river restoration design Gardner Johnston <i>Inter-Fluve, USA</i>	Land use effects on nutrient cycling and loss from headwaters to Great Lakes in the Fox River Basin, Wisconsin, USA: project overview Rebecca Kreiling <i>United States Geological Survey, United States</i>	Glacier shrinkage driving global changes in downstream ecosystems Alexander Milner <i>University of Birmingham, United Kingdom</i>	Growth of adult inanga is related to when they hatch and when they migrate to freshwater Eimear Egan * <i>University of Canterbury, New Zealand</i>	Patterns and drivers of spatio-temporal variability of turbidity in lakes at the regional scale Deniz Özkundakci <i>Waikato Regional Council, New Zealand</i>
11:00am – 11:15am	Ecogeomorphology and partnerships: strategies employed in building a watershed restoration programme in rural Washington State, USA Will Conley * <i>Massey University, New Zealand</i>	Phosphorus retention across land cover types in the Fox River Basin, Wisconsin, USA Rebecca Kreiling * <i>United States Geological Survey, USA</i>	Climate reconstruction using the New Zealand freshwater bivalve <i>Echyridella menziesii</i> from Lake Rotorua Dilmi Herath * <i>Macquarie University, Australia</i>	Genetic and ecological population structuring among and between landlocked and diadromous populations of a facultatively amphidromous fish Jason Augspurger <i>University of Otago, New Zealand</i>	Temporal trends in the relative abundance of New Zealand freshwater fishes Shannan Crow <i>NIWA, New Zealand</i>
11:15am – 11:30am	Stream restoration in the Hawaiian Islands: how mālama ka `āina is restoring traditional farming practices and improving stream conditions for native `o`opu Gordon Smith <i>United States Fish and Wildlife Service, USA</i>	Instream nitrogen cycling and loss from headwaters to Great Lakes in the Fox River Basin, Wisconsin, USA Lynn Bartsch <i>United States Geological Survey, USA</i>	Does riparian management influence greenhouse gas emissions from soils and streams? Nikki Burrows * <i>University of Auckland, New Zealand</i>	Is salmonid migration initiated by juvenile intra-specific competition? Pavel Mikheev * <i>University of Otago, New Zealand</i>	Ecology and the six values approach to managing Christchurch City's waterways Greg Burrell <i>Instream Consulting, New Zealand</i>

Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2
11:30am - 11:45am	Waikato and Waipa River Restoration Strategy - an action plan for the restoration of New Zealand's longest river Keri Neilson <i>Waikato River Authority, New Zealand</i>	Land use change alters nutrient processing in streams along Brazil's agricultural frontier Kathi Jo Jankowski <i>United States Geological Survey, USA</i>	Bottom-up quantification of mega inter-basin water transfer vulnerability to climate change Enze Zhang * <i>Beijing Normal University, China</i>	Transportation of spawners is more effective than multiple fish passage facilities in the river Klaralven, Sweden Marco Blixt <i>Fortum Sverige AB, Sweden</i>	Critical water quality assessment in Lamtaklong River, Thailand Nares Chuersuwan <i>Suranaree University Of Technology, Thailand</i>
11:45am – 12:00pm	Creating habitat for endangered fish in a managed river system - how created ecosystems are becoming the new focus of stream restoration: Dry Creek, Sonoma County, California, USA Greg Koonce <i>Inter-Fluve, USA</i>	Starting at the top: attenuation of agricultural nitrogen loads by a headwater wetland Chris Tanner <i>NIWA, New Zealand</i>	Non-linear effects of hydrological variability on fish population dynamics in extremely stochastic freshwater ecosystems. Richard White <i>University of Canterbury, New Zealand</i>	Fish community response to the fragmentation of river networks Leah McIntosh * <i>University of New England, Australia</i>	Implementing a real river and stream State of the Environment monitoring programme Alton Perrie <i>Greater Wellington Regional Council, New Zealand</i>
12:00 – 1:30pm	Lunch			12:30pm – 1:30pm “Freshwater in the media: who speaks for science?” Presenter: Dacia Herbulock, Science Media Centre Arena Lounge Room (all welcome)	
Session	Special Session: Balancing Human and Ecological Objectives in River Restoration	Special Session: Land-use Effects on In-stream Cycling and Retention of Nitrogen and Phosphorus	Invertebrate Ecology	Connectivity	Managing Within Limits
Chair	Keri Nielsen	John Quinn	Richard Storey	Konrad Górski	Scott Larned
1:30pm – 1:45pm	Using beaver dam analogues to reduce downstream sediment loads: a pilot project in California Creek, Spokane, Washington State, USA Sue Niezgoda <i>Gonzaga University, USA</i>	Bioavailability of phosphorus emissions and loadings in surface waters of Germany Markus Venohr <i>Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Germany</i>	Relationships between large wood in rivers, benthic macroinvertebrates, and hyporheic invertebrates Chiara Magliozzi * <i>Cranfield University, United Kingdom</i>	He not busy being born is busy dying Clifford Ochs <i>University of Mississippi, USA</i>	The land use suitability concept: a system to inform land-use and catchment planning and assessment Rich McDowell <i>Our Land And Water National Science Challenge, New Zealand</i>
1:45pm – 2:00pm	A servant of many masters - when restoration has to meet many expectations: management and monitoring in a floodplain restoration project along a Danube stretch in Bavaria (Germany) Bernd Cyffka <i>University of Eichstaett-Ingolstadt, Germany</i>	Nitrogen and phosphorus filters: performance of tile drain nutrient filters at Waituna – year one Neale Hudson <i>NIWA, New Zealand</i>	Applying a combination of geomorphological and ecological techniques to understand the relationships between macroinvertebrate communities and river morphology in New Zealand Kelly Clinton * <i>Massey University, New Zealand</i>	Present state and future trends in the hydrologic connectivity of central Chilean rivers: Effects on native fish diversity Gustavo Díaz * <i>University of Concepción, Chile</i>	Contaminant load limits and the “critical point” Malcolm Green <i>Streamlined Environmental, New Zealand</i>

Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2
2:00pm - 2:15pm	Manuka-dominated ecosystems to improve water quality and provide economic and social return in the Lake Waikare catchment Maria Jesus Gutierrez Gines <i>Environmental Science and Research Institute, New Zealand</i>	Geospatial data and Overseer for nutrient management on dairy farms Hans Eikaas <i>DairyNZ, New Zealand</i>	Are rare, macroinvertebrate taxa important for freshwater community ecology? Dimitrios Rados * <i>Massey University, New Zealand</i>	Can local-scale longitudinal variability of low-flow width be a proxy of mesohabitat diversity? Marie Spitoni * <i>French National Centre for Scientific Research, France</i>	Incorporating resilience and resistance in assessments of land-use suitability Scott Larned <i>NIWA, New Zealand</i>
2:15pm – 2:30pm	Artificial fish shelters developed by a statistical approach on natural fish habitats Sebastien Den Doncker <i>Stream and River Consult, Belgium</i>	Re-aligning stream rehabilitation theory and practice to attenuate edge-of-field and in-stream nitrate export in agricultural waterways in Canterbury, New Zealand Brandon Goeller * <i>University of Canterbury, New Zealand</i>	Oxidative stress response of caddisfly larvae <i>Stenopsyche marmorata</i> to combined effects of turbid water and temperature Jumpei Suzuki * <i>Central Research Institute of Electric Power Industry, Japan</i>	Effects of connectivity on benthic macroinvertebrate community structure of secondary channels in the Mississippi River, USA Audrey Harrison * <i>University of Mississippi, USA</i>	The Land Use Suitability Spatial Explorer (LUSSE) Ton Snelder <i>Land Water People, New Zealand</i>
2:30pm – 2:45pm	Incorporating broader environmental objectives into Lower Waikato flood control infrastructure and drainage services Peter Roberts <i>Waikato Regional Council, New Zealand</i>	Drivers of periphyton biomass and community type along the gravel bed Tukituki River during summer. John Quinn <i>NIWA, New Zealand</i>	Zooplankton influence on algal dynamics in rivers Anna Freeman * <i>University of Reading, United Kingdom</i>	The impact of historical mining activity on aquatic macroinvertebrates at Puhipuhi, Northland Marlese Fairgray * <i>University of Canterbury, New Zealand</i>	Freshwater tipping points: What? When? Where? How? Why? Marc Schallenberg <i>University of Otago, New Zealand</i>
2:45pm – 3:00pm	Turning ‘nice to know’ into ‘need to know’: a decision support system to diagnose factors limiting stream fisheries Robin Holmes <i>Cawthron Institute, New Zealand</i>		Effects of contrasting extreme flooding on biotic communities in Glacier Bay, Alaska Alexander Milner <i>University of Birmingham, United Kingdom</i>	Changes in hydrologic connectivity of the largest river basin in Chile: effects on native fish with different dispersal abilities Konrad Górski <i>Universidad Católica de la Santísima Concepción, Chile</i>	Exploration of implications of capacity for land use intensification under water quality constraints at national scale Sandy Elliott <i>NIWA, New Zealand</i>
3:00pm – 3:30pm	Afternoon Tea				
3:30pm – 4:15pm	Keynote Speaker – Linda Te Aho <i>Te Mana o te Wai. A Māori perspective on rivers and the place of indigenous values in river management.</i> Chair – Julian Williams Location: Heaphy 1&2				
4:15pm – 6:30pm	Mix & Mingle - kindly sponsored by Morphum Environmental Claudelands Upper Concourse Arena				
7:00pm	NZFSS Public Forum				

Tuesday 21 November

8:00am	Registration Desk Opens					
8:50am	Welcome and Housekeeping Location: Heaphy 1&2					
9:00am - 10:00am	Keynote Speaker – Catherine Knight <i>How have we valued New Zealand's rivers? A historical perspective.</i> Chair: Laddie Kuta Location: Heaphy 1&2					
10:00am - 10:30am	Morning Tea					
Session	Special Session: Fish Passage Management	Special Session: Integrative Methods for Environmental Design of Hydropower	River Water Quality	Connectivity	Human Health	Indicators and Frameworks
Chair	Sjaan Bowie	Ana Adeva Bustos	Jenny Webster-Brown	Josh Smith	Gillian Lewis	Juliet Milne
Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
10:30am - 10:45am	The New Zealand Fish Passage Advisory Group – improved coordination and management of a key pressure facing our waterways Sjaan Bowie <i>Department of Conservation, New Zealand</i>	Importance of integrating physical and biological processes along with societal needs for sustainable energy and protecting a river's goods and services Allen Curry <i>Canadian Rivers Institute, Canada</i>	Before and after integrated catchment management: changes in water quality Andrew Hughes <i>NIWA, New Zealand</i>	Assembly and disassembly of aquatic invertebrate communities in a dynamic floodplain ecosystem Stefano Larsen <i>Trento University, Italy</i>	Moving to real-time measurement of microbial health risks in rivers Rebecca Stott <i>NIWA, New Zealand</i>	Riverine ecosystem services: Pledges and pitfalls of their integrative assessment Martin Pusch <i>Leibniz Institute of Freshwater Ecology and Inland Fisheries, Germany</i>
10:45am - 11:00am	Evaluating the likelihood of fish passage success at culverts in New Zealand using expert knowledge Paul Franklin <i>NIWA, New Zealand</i>	Using LiDAR to suggest an integrative environmental flow in a Swedish river Ana Adeva Bustos * <i>Norwegian University of Science and Technology, Norway</i>	Nitrogen budgets in rivers: proteins can make an important, but varied contribution to dissolved organic nitrogen. Gavin Rees <i>La Trobe University, Australia</i>	Spatial variability of invertebrate drift in coarse-bed streams: hydraulic and morphodynamic controls Piotr Cienciala <i>University of Illinois at Urbana-Champaign, USA</i>	<i>E.coli</i> standards and risks to human health in New Zealand waterways: what more? Ayokunle Christopher Dada <i>Streamlined Environmental, New Zealand</i>	Development of linked frameworks to represent and manage catchment-scale contaminant transport for improved water quality outcomes Richard Muirhead <i>AgResearch, New Zealand</i>
11:00am - 11:15am	Floating fish ramps: a new tool in the fish passage toolbox Dan Fake * <i>Hawkes Bay Regional Council, New Zealand; The University of Waikato, New Zealand</i>	Assessing the limits of eco-sustainable hydropower development Carina Seliger <i>University of Natural Resources and Life Sciences, Austria</i>	Understanding the linkage between hydrological and chemical signatures at catchment outlets and dominant contaminant transfer pathways Roland Stenger <i>Lincoln Agritech, New Zealand</i>	The influence of site connectivity on zooplankton assemblage dynamics within the Lower Mississippi River Floodplain Jarrold Sackreiter <i>University of Mississippi, USA</i>	The world's largest waterborne campylobacteriosis outbreak: Havelock North August 2016 Brent Gilpin <i>Environmental Science and Research, New Zealand</i>	Evaluating Greater Wellington Regional Council's Natural Resources Plan Lucy Baker <i>Greater Wellington Regional Council, New Zealand</i>

Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
11:15am - 11:30am	How effective are spat ropes at providing for fish passage in culverts five years after installation? Dean Miller <i>Tonkin & Taylor, New Zealand</i>	FISH-Net: A model to support sustainable hydropower planning, design and monitoring for fish passage in the temperate Southern Hemisphere Martin Wilkes <i>Coventry University, United Kingdom</i>	Nutrient limitation in the Waikato River catchment, from Lake Taupo to the estuary Piet Verburg <i>NIWA, New Zealand</i>	Waikato Regional Council freshwater fish monitoring programme – overview and preliminary results with a focus on connectivity Josh Smith <i>Waikato Regional Council, New Zealand</i>	Using a metagenomic sequencing approach for faecal source tracking Megan Devane <i>Environmental Science and Research, New Zealand</i>	Managing freshwater ecosystems: how do we measure success? Carl Howarth <i>Ministry for the Environment, New Zealand</i>
11:30am - 11:45am	Refinement of fish friendly criteria for hydropower and irrigation diversions Craig Boys <i>Charles Sturt University, Australia</i>	Strategies to implement cost-efficiency mitigation measures in hydropeaking rivers: a focus on early life stages of salmonids Svein Jakob Saltveit <i>University of Oslo, Norway</i>	Temporal and spatial pollution dynamics in the river-style Three Gorges Reservoir on the Yangtze River, China Andreas Holbach <i>Karlsruhe Institute of Technology, Germany</i>		Not all faecal pollution is equal: targeted management relies on knowledge of the source Justine Quinn <i>Tonkin + Taylor, New Zealand</i>	'Maintain or Improve': how do we judge that? Graham McBride <i>NIWA, New Zealand</i>
11:45am – 12:00 pm	Downstream migrant eel movements in the lower Waikato River and passage past Huntly power station Cindy Baker <i>NIWA, New Zealand</i>	Fish Hazard Index: a tool for assessing hydropower impacts on fish Christian Wolter <i>Berlin, Germany</i>	The effects of the 2017 wildfires in the Port Hills on stream water quality Jenny Webster-Brown <i>Waterways Centre for Freshwater Management, New Zealand</i>		Viral beach balls and bacterial backstroke: pathogen ecology in freshwater Gillian Lewis <i>University of Auckland, New Zealand</i>	
12:00 - 1:30pm	Lunch					
Session	Special Session: Fish Passage Management	Special Session: Insights from Long-term Temporal and Large-scale Spatial Datasets	Citizen Science and Ecosystem Services	Food Webs	Human Health	Mussel Biology and Conservation
Chair	Bryn Quilter	Martin Thoms	Roger Young	Karen Shearer	Rebecca Stott	Susan Clearwater
1:30pm - 1:45pm	Fish passage solutions: a bit of theory, give it a go, monitor, and learn from our mistakes. Logan Brown <i>Horizons Regional Council, New Zealand</i>	Use of long-term data in river science: recent successes and future challenges and opportunities Andrew Casper <i>University of Illinois, USA</i>	Volunteer water monitoring as a focus for community engagement in New Zealand Robert Davies-Colley <i>NIWA, New Zealand</i>	Quantifying basal trophic resources for shallow lake food webs Kevin Collier <i>University of Waikato, New Zealand</i>	Modelling differing human health risk from recreational water contact with different faecal sources David Wood <i>Environmental Science and Research, New Zealand</i>	Mass propagation of native freshwater mussels <i>Echyridella menziesii</i> Susan Clearwater <i>NIWA, New Zealand</i>

Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
1:45pm - 2:00pm	Engineering design for fish passage Bryn Quilter <i>Tonkin & Taylor, New Zealand</i>	Effects of climatic and trophic processes on freshwater invertebrate communities: recent insights from long-term studies on French streams and rivers Mathieu Floury <i>Irstea, France</i>	Community monitoring of water quality – do the <i>E. coli</i> numbers stack up? Paul Fisher <i>Nelson City Council, New Zealand</i>	Quantifying trophic interactions in shallow lake food webs using stable isotopes of carbon and nitrogen Michael Pingram <i>Waikato Regional Council, New Zealand</i>	Use of QMRA to assess the human health risk of the Mataura River, Southland Elaine Moriarty * <i>Environmental Science and Research, New Zealand</i>	Effects of water temperature on the release and viability of glochidia of the freshwater mussel, <i>Echyridella menziesii</i> Michele Melchior * <i>University of Waikato, New Zealand</i>
2:00pm - 2:15pm	Assessment of public road-river intersections for provision of fish passage in Southland, New Zealand: methods, interim results, and proposed management actions James Dare <i>Environment Southland, New Zealand</i>	Taxonomic and functional diversity in four large and intensively-monitored Midwestern United States rivers Jerrod Parker <i>Illinois Natural History Survey, USA</i>	Just because I'm young, don't count me out Kirsty Brennan <i>EOS Ecology, New Zealand</i>	The influence of nutrient enrichment on riverine food webs: are the defences compromised? Adam Canning * <i>Massey University, New Zealand</i>	Do cyanobacteria blooms develop inshore or in the middle of the lake? Max Gibbs <i>NIWA, New Zealand</i>	Assessing habitat preference and in-stream distribution of New Zealand freshwater mussels using mark-recapture techniques Alicia Catlin <i>Waikato Regional Council, New Zealand</i>
2:15pm - 2:30pm	Managing the effects of land drainage and flood control infrastructure on fish passage in the Waikato Mike Lake <i>Waikato Regional Council, New Zealand</i>	Macroecological analysis of rivers in temperate steppes of the USA and Mongolia: from hydrogeomorphology to food webs James Thorp <i>University of Kansas, USA</i>	Contributing science to collaborative group decision making: reflections on working with the Takaka Freshwater Land Advisory Group Roger Young <i>Cawthron Institute, New Zealand</i>	Seasonal variations in consumer nitrogen recycling in an oligotrophic lake: a stable isotope study Simon Stewart * <i>University of Waikato, New Zealand</i>	Simple <i>E. coli</i> testing methods – how do they stack up for community volunteer monitoring? Rebecca Stott <i>NIWA, New Zealand</i>	Can the bio-deposition and physical structure of hyriid freshwater mussels alter benthic algae and invertebrate assemblages in floodplain rivers? Nicole McCasker <i>Charles Sturt University, Australia</i>
2:30pm - 2:45pm	Use of passive integrated transponder tags and acoustic hydrophones to document eel movement and mortality through a non-gravity fed axial pumping station Bruno David <i>Waikato Regional Council, New Zealand</i>	Naughty rivers: conforming or deviating ecosystem responses to anthropogenic drivers Jason DeBoer * <i>Illinois River Biological Station, USA</i>	Riverine ecosystem services: exploring stakeholders' views Gabriela Costea <i>Leibniz Institute of Freshwater Ecology and Inland Fisheries, Germany</i>	Canterbury mudfish food webs across a gradient of drought intensity Christopher Meijer * <i>University of Canterbury, New Zealand</i>	Little Oneroa Stream – Great for ducks, not for people Brett Stansfield <i>Environmental Impact Assessments Ltd, New Zealand</i>	Freshwater mussel research and conservation Aotearoa Susan Clearwater <i>NIWA, New Zealand</i>
2:45pm – 3:00pm	Weir removal made easy Matthew Bloxham <i>Auckland City Council, New Zealand</i>	The non-effect of restoring a large river: the Darling River, Australia Martin Thoms <i>University of New England, Australia</i>		Energy density of common New Zealand macroinvertebrates for freshwater invertebrate-fish relationships, models and indices Karen Shearer <i>Cawthron Institute, New Zealand</i>		Mussel conservation discussion

3:00pm – 3:30pm	Afternoon Tea
3:30pm - 4:15pm	Keynote Speaker - Sonja Jähnig <i>Modelling riverine biodiversity and ecosystems service delivery - simple, integrated, or complex?</i> Chair – Deniz Özkundaci Location: Heaphy 1&2
4:15 - 6:00pm	Poster Session, Claudelands Upper Concourse Arena
6:00pm – 8:00pm	ISRS Boat Trip, Buses depart outside Claudelands – Heaphy Terrace
6:30pm	Student Function, Roaming Giant
6:30pm	SWIM Meeting, Claudelands Arena Lounge

Wednesday 22 November

8:00am	Registration Desk Opens					
8:50am	Welcome and Housekeeping					
9:00am - 10:00am	Keynote Speaker – Gary Brierley <i>A new dawn is upon us: The use of emerging technologies in river science and management</i> Chair – Brendan Hicks					
10:00am - 10:45am	Morning Tea					
Session	Special Session: Fish Passage Management	Special Session: Making Room For Rivers	Ecohydraulics	Wetlands	Resilience	Algae and Macrophytes
Chair	Kati Doehring	Kyle Christensen	John Hayes	Yvonne Taura	Elizabeth Graham	Cathy Kilroy
Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
10:45am - 11:00am	What has been the contribution of fish passages for migratory fish conservation in tropical systems? Luiz Silva <i>UFSJ, Brazil</i>	The evolution of river width design for gravel bed rivers in New Zealand. Kyle Christensen <i>Independent Consultant, New Zealand</i>	Invertebrate drift transport modelling: it's been a wild ride! John Hayes <i>Cawthron Institute, New Zealand</i>	Managing wetlands for carbon storage in an agricultural landscape I: threats and management options Susanne Watkins <i>Murray Local Land Services, Australia</i>	Vulnerability of freshwater ecosystems to state shifts associated with tipping points Angus McIntosh <i>University of Canterbury, New Zealand</i>	Within mat nutrient cycling in <i>Phormidium</i> – alkaline phosphatase activity and regulation Laura Kelly * <i>Victoria University of Wellington, New Zealand</i>
11:00am - 11:15am	Na ika i Viti - freshwater issues in the tropical islands of Fiji Kati Doehring <i>Cawthron Institute, New Zealand</i>	Defining braided river margins Jo Hoyle <i>NIWA, New Zealand</i>	Predicting the effects on mussels of decreased minimum flows James Layzer <i>Tennessee Tech University, USA</i>	Managing wetlands for carbon storage in an agricultural landscape II: project approach and achievements Sarah Ning <i>Murray Darling Wetlands Working Group, Australia</i>	Community structure and food web pathways in macro-algal dominated lakes: is this another stable state? David Kelly <i>Cawthron Institute, New Zealand</i>	<i>Phormidium</i> growth responses along hydrological gradients in three south Canterbury rivers Tara McAllister * <i>Waterways Centre for Freshwater Management, New Zealand</i>
11:15am - 11:30am	Case study at River Orkla in Central Norway: numerical modelling of hydraulic conditions at a river section combined with fish telemetry data in 3D Marcell Szabo-Meszaros * <i>Norwegian University of Science and Technology, Norway</i>	One small river and one road - so why two large bridges? Iain Smith <i>Beca, New Zealand</i>	Analysis of bedload transport processes during flood events based on numerical simulations Kurt Glock * <i>University of Natural Resources and Life Sciences, Austria</i>	Te Reo o Te Repo – The voice of the wetland, a cultural wetland handbook Yvonne Taura <i>Manaaki Whenua, New Zealand</i>	Sediment geochemistry indicators of lake resilience Sean Waters <i>Cawthron Institute, New Zealand</i>	When and why do <i>Phormidium</i> blooms occur, and when are toxins produced and released? Soozie Wood <i>Cawthron Institute, New Zealand</i>
11:30am - 11:45am	Impacts of weirs on downstream passage of native fish in the Murray-Darling Basin Craig Boys <i>Charles Sturt University, Australia</i>	Vulnerability zone identification and river channel change sensitivity in the Ruamahanga catchment Will Conley * <i>Massey University, New Zealand</i>	A physical objectives approach to achieving desired periphyton removal using environmental flows Andrew Neverman * <i>Massey University, New Zealand</i>	Loss of freshwater wetlands since 1990 in Southland, New Zealand: causes and consequences Hugh Robertson <i>Department of Conservation, New Zealand</i>	Does nutrient enrichment affect the response of stream communities to large floods? Yen Dinh * <i>Massey University, New Zealand</i>	Redefining “accrual period” improves ability to predict annual maximum chlorophyll a in rivers Cathy Kilroy <i>NIWA, New Zealand</i>

Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
11:45am – 12:00 pm	Fish passage research needs to diversify its concepts and methods to work on a global scale Martin Wilkes <i>Coventry University, United Kingdom</i>	“Big” rivers, big pressures Dave West <i>Department of Conservation, New Zealand</i>	Flow-vegetation interactions at the patch scale Hamish Biggs <i>NIWA, New Zealand</i>	An introduction to wetland delineation protocols in the USA Daniel Gerber <i>University of Wisconsin, USA</i>	Resilience is not always good! A framework for overcoming negative resistance and resilience in stream restoration Helen Warburton <i>University of Canterbury, New Zealand</i>	Understanding factors that affect macrophytes in agricultural waterways Katie Collins * <i>University of Canterbury, New Zealand</i>
12:00 - 1:30pm	Lunch					
Session	Special Session: Spatial Patterns and Processes of Biota in River Networks	Traditional Knowledge	Lake Water Quality	Macroinvertebrate Indicators	Hydrogeomorphology	
Chair	Johannes Radinger	Julian Williams	David Hamilton	Joanne Clapcott	Ian Fuller	
1:30pm - 1:45pm	The interacting effects of connectivity and global change on fishes in river networks Johannes Radinger <i>Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Germany; Universitat de Girona, Spain</i>	Development of a strategic and enduring approach to managing and improving Mahinga Kai within the Ngati Tahu-Ngati Whaoa rohe – Te Awa o Waikato Johlene Kelly / Evelyn Forrest <i>Ngati Tahu-Ngati Whaoa Runanga Trust, New Zealand</i>	Modelling of trophic state of New Zealand lakes and visualisation with the geospatial platform Takiwa David Hamilton <i>Griffith University, Australia</i>	Macroinvertebrate indicators: presence or absence in national policy? Joanne Clapcott <i>Cawthron Institute, New Zealand</i>	Integrating geomorphology and ecology for resilient river engineering Ian Fuller <i>Massey University, New Zealand</i>	
1:45pm - 2:00pm	Interactive effects of hydrogeomorphic characteristics on fish community structure in a floodplain river Michael Delong <i>Winona State University, USA</i>	The application of a maatauranga whakapapa framework by Ngaati Tahu Ngaati Whaoa towards mahinga kai attributes within the National Objectives Framework Evelyn Forrest / Sue Clearwater <i>Ngati Tahu-Ngati Whaoa Runanga Trust, New Zealand; NIWA, New Zealand</i>	The relationship between watercolor, CDOM absorption and remotely-sensed reflectance spectra of New Zealand lakes Uyen Nguyen <i>University of Waikato, New Zealand</i>	Predicting the invertebrate community reference condition for New Zealand rivers Martin Neale <i>MartinJenkins, New Zealand</i>	Direct and indirect effects of multiple stressors on stream fauna across watershed, reach and site scale: a path modelling analysis revealing the role of hydromorphology Jeremy Piffady <i>Irstea, France</i>	
2:00pm - 2:15pm	Does genetic introgression between stocked and wild populations affect patterns of dispersal? A case study in a brown trout (<i>Salmo trutta</i>) population. Keoni Saint-Pé <i>Station d'Ecologie Theorique et Experimentale du CNRS, France</i>	Wai Ora Wai Māori – a kaupapa Māori assessment tool for freshwater management Yvonne Taura / Kiri Reihana <i>Manaaki Whenua, New Zealand</i>	Water colour trends over 18 years in all New Zealand lakes from Landsat observations Moritz Lehmann <i>University of Waikato, New Zealand</i>	Development of stressor-specific invertebrate metrics – does it work and what for? Annika Wagenhoff <i>Cawthron Institute, New Zealand</i>	A technique to assess river habitat change – the missing dimension for water resource management. Meredith Davis <i>Massey University, New Zealand</i>	

Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
2:15pm - 2:30pm	Network connectivity and complexity drive population persistence and stability in connected landscapes Angus Webb <i>University of Melbourne, Australia</i>	Lake Waahi hauanga kai co-science project Mathew Allan / Norm Hill <i>University of Waikato, New Zealand; Boffa Miskell, New Zealand</i>	Within-lake measurement of phosphorous bioavailability: a multimethod approach Huma Saeed * <i>University of Waikato, New Zealand</i>	Incorporating biological traits in New Zealand freshwater biomonitoring and assessment Brian Smith <i>NIWA, New Zealand</i>	Influence of bank habitat type on fish and invertebrate communities in the Waikato River Toni Shell <i>Tonkin & Taylor, New Zealand</i>	
2:30pm - 2:45pm	Spatial patterns in fish assemblages driven by confluence complexity mediating invasive species interactions Nixie Boddy * <i>University of Canterbury, New Zealand</i>	The continuing journey towards kaitiaki monitoring. Brett Cockeram <i>Greater Wellington Regional Council, New Zealand</i>	Lakes as organic matter upgraders – seasonal variation in biochemical compositions of in- and outflowing particles in pre-alpine Lake Lunz, Austria Samiullah Khan <i>University of Otago, New Zealand</i>	The role of macroinvertebrates in nutrient processing in the Tukituki River Elizabeth Graham <i>NIWA, New Zealand</i>	Characteristics of the very rare Whakatāne flood of 6 April 2017 and implications for design Peter Blackwood <i>Bay of Plenty Regional Council, New Zealand</i>	
2:45pm – 3:00pm	Targeting connectivity restoration in inland waters: a spatial network analysis approach Pedro Segurado <i>University of Lisbon, Portugal</i>	Kaitiaki layers: visualising mātauranga Māori and science Maui Hudson <i>The University of Waikato, New Zealand</i>	Contribution of organic phosphorus to phytoplankton phosphorus demand in a phosphate-depauperate lake Matthew Prentice <i>Griffith University, Australia</i>		Morphological effects of altered flow and sediment regime and vegetation encroachment in dam-impacted braided rivers: a numerical modelling study Guglielmo Stecca DICAM <i>University of Trento, Italy</i>	
3:00pm - 3.30pm	Afternoon Tea					
Session	Special Session: Spatial Patterns and Processes of Biota in River Networks	Traditional Knowledge	Fish Ecology	Urban/Stormwater	Modelling/Hydrology	Monitoring and Assessment Methods
Chair	Johannes Radinger	Julian Williams	Phil Jellyman	Damian Young	Christian Zammit	Eloise Ryan
3:30pm - 3:45pm	River Network Toolkit – easing freshwater network data management Pedro Segurado <i>University of Lisbon, Portugal</i>	Kia Mahitahi – working together: a cultural perspective for freshwater management in Te Tau Ihu o te Waka a Māui. Aneika Young <i>Cawthron Institute, New Zealand</i>	Large longfin eels in an un-fished Taranaki landslide-dammed lake Dylan Smith <i>University of Waikato, New Zealand</i>	Watercourse assessment and catchment management in Hamilton City Damian Young <i>Morphum Environmental, New Zealand</i>	Hydrodynamic catchment to sea modelling Graeme Smart <i>NIWA, New Zealand</i>	Monitoring river use with camera traps Adam Daniel <i>Auckland/Waikato Fish & Game, New Zealand</i>
3:45pm - 4:00pm	Species distribution and species dispersal models, instruments for tomorrow's river basin management? Daniel Teschlade <i>University of Duisburg-Essen, Germany</i>	Te Wai Koiora – stream restoration and cultural stream health monitoring Katie Blakemore <i>Taranaki Regional Council, New Zealand</i>	Predicting the biodiversity consequences of altered thermal regimes in rivers: the need to understand fundamental thermal niches Rick Stoffels <i>Murray-Darling Freshwater Research Centre, Australia</i>	Integrating ecological and stormwater mitigation and offsetting Mark Lowe <i>Morphum Environmental, New Zealand</i>	Estimating water residence time distribution in river networks by boosted regression trees (BRT) model Meili Feng <i>University of Nottingham Ningbo China, China</i>	Centrifugal Macrophyte Elutriation (CME): a novel method to separate macroinvertebrates from organic matter in streams with high macrophyte biomass Michael Greer <i>Greater Wellington Regional Council, New Zealand</i>

Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
4:00pm - 4:15pm	Gene flow simulations demonstrate resistance of long-lived species to genetic erosion of habitat fragmentation Matthew Fuller <i>Duke University, USA</i>	Protecting ancient Māori rock art in a changing freshwater management environment Mandy Home <i>NIWA, New Zealand</i>	Wet and dry season flows influence juvenile fish abundance in a tropical river Alison King <i>Charles Darwin University, Australia</i>	Watercourse assessment reports: a framework for integrated stream management Michael Lindgreen <i>4sight Consulting, New Zealand</i>	Cumulative Hydrological Effects Simulator: a tool for characterising the consequences of water use on multiple values Jan Diettrich <i>NIWA, New Zealand</i>	A global approach for assessing environmental flow requirements: considering organic matter budget and energy transportation Yui Shinozaki * <i>University of Tsukuba, Japan</i>
4:15pm - 4:30pm	A conceptual synthesis of flow-recruitment relationships for riverine fishes Nicole McCasker <i>Charles Darwin University, Australia</i>	Incorporating cultural values and perspectives of First Peoples' (Aboriginal People) into water planning and environmental water management Bradley Moggridge * <i>University of Canberra, Australia</i>	The impact of didymo on adult trout abundance – has there really been an effect? Phil Jellyman <i>NIWA, New Zealand</i>	Drainage geometric networks and catchment management to support freshwater outcomes Emily Reeves <i>Morphum Environmental, New Zealand</i>	Improving instream habitat and mitigation studies with spatially extensive groundwater – surface water interaction models Christian Zammit <i>NIWA, New Zealand</i>	The value of high-frequency water quality monitoring before, during and after high flow events for describing temporal and spatial dynamics in an intensively farmed lowland floodplain Eloise Ryan <i>Waikato Regional Council, New Zealand</i>
4:30pm - 4:45pm	The importance of network discontinuity in the ecology and conservation biology of African headwater stream minnows Darragh Woodford <i>University of the Witwatersrand, South Africa</i>			Colourful urban streams: microplastic pollution of the freshwater systems in the Auckland region. Nadia Dikareva * <i>University of Auckland, New Zealand</i>	Tidal flood modelling at Dargaville Hugh MacMurray <i>Barnett & MacMurray, New Zealand</i>	A new multi-scale approach to predict potential hyporheic exchange flow in rivers Chiara Magliozzi * <i>Cranfield University, United Kingdom</i>
5:00pm – 5:30pm	NZFSS Medal Award Plenary - Dr John Hayes - <i>The paradox of integrating immigrants: how salmonids have influenced freshwater values, environmental law and policy, water wars and research in New Zealand</i>					
5:30pm - 6:15pm	NZFSS AGM, Claudelands Arena Lounge					
5:30pm – 6:00pm	NZRG AGM, Claudelands Brooklyn 1					
From 6:00pm	Special screening of the Lost Rivers Film, organised by Morphum Environmental at Lido Hamilton			Optional Informal Social Function Meet other delegates across the road, at the Roaming Giant (own expense)		

Thursday 23 November

8:00am	Registration Desk Opens					
8:50am	Welcome and Housekeeping					
9:00am - 10:00am	Keynote Speaker – Melissa Parsons <i>Extreme floods and river resilience: a social-ecological perspective</i> Chair – Martin Thoms					
10:00am - 10:30am	Morning Tea					
Session	Special Session: Balancing Environmental Flow Objectives	Special Session: Estuaries – Environments in Transition	River Restoration	Lake and Wetland Restoration	Water Quality	Sediment
Chair	Paul Franklin	Eleanor Gee	Fleur Matheson	Soozie Wood	Chris Hickey	Murray Hicks
Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
10:30am - 10:45am	Water quantity limits to support multiple values in New Zealand rivers: are minimum flows enough? Paul Franklin <i>NIWA, New Zealand</i>	Minimum flow considerations in estuaries Eleanor Gee <i>NIWA, New Zealand</i>	Big data on New Zealand riparian restoration: who, what, where, why, how much, and is it working? Richard Storey <i>NIWA, New Zealand</i>	Can proven geo-engineering products increase water clarity and decrease sediment phosphorus fluxes in a Waikato peat lake? Ben Woodward <i>NIWA, New Zealand</i>	Light regime in a large river using flow-path, snap-shot, and fixed-site measurement approaches John Gardner * <i>Duke University, USA</i>	Erosion control treatment trials on loess soils Shelley McMurtrie <i>EOS Ecology, New Zealand</i>
10:45am - 11:00am	Mapping water quantity allocation across New Zealand Doug Booker <i>NIWA, New Zealand</i>	The New Zealand Estuary Trophic Index (ETI) Tools John Zeldis <i>NIWA, New Zealand</i>	Stream enhancement – what actually happens? Alex James <i>EOS Ecology, New Zealand</i>	Responses of the fish community and biomass in Lake Ohinewai to fish removal and a carp exclusion barrier Brendan Hicks <i>University of Waikato, New Zealand</i>	Diurnal variations in nutrient uptake and recycling in the Tukituki River Kit Rutherford <i>NIWA, New Zealand</i>	Ecological aspects of sediment management and monitoring at alpine rivers Rolf Rindler * <i>University of Natural Resources and Life Sciences, Austria</i>
11:00am - 11:15am	Enabling an Indigenous community to inform environmental flow setting processes: examples from the results of Cultural Flow Preference Studies undertaken in New Zealand. Gail Tipa <i>Tipa and Associates, New Zealand</i>	Demonstrating the New Zealand Estuary Trophic Index (ETI) Tools Amy Whitehead <i>NIWA, New Zealand</i>	Relating with rivers as part of best river management practice Simon Mould * <i>Macquarie University, Australia</i>	Nutrient cycling in Lake Horowhenua and restoration options Piet Verburg <i>NIWA, New Zealand</i>	The search for the source of phosphorus in the Tukituki River: the role of diurnal fluctuations in water column pH from periphyton photosynthesis Craig Depree <i>NIWA, New Zealand</i>	Effects of change in catchment sediment load on sediment rating curves and particle size Murray Hicks <i>NIWA, New Zealand</i>

Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
11:15am - 11:30am	Environmental flows for ecosystem function: plausible reality or impossible dream? Fiona Dyer <i>University of Canberra, Australia</i>	Fish composition of permanently open and intermittently closed estuaries in east coast of Otago, New Zealand Fasil Wolebu <i>University of Otago, New Zealand</i>	Effectiveness of whole ecosystem and in-stream lime applications to restore acid-stressed Adirondack Mountain stream communities: leaf decomposition and nutrient uptake responses Randy Fuller <i>Colgate University, USA</i>	Using environmental DNA to characterise contemporary and historic lake communities Soozie Wood <i>Cawthron Institute, New Zealand</i>	'NZ inc.' takes a step towards national consistency in river and lake water quality monitoring – a new National Environmental Monitoring Standard (NEMS) Juliet Milne <i>NIWA, New Zealand</i>	Effects of different size sediment deposition on the riparian forestation Takashi Asaeda <i>Saitama University, Japan</i>
11:30am - 11:45am	Characterising diverse river landscapes using hydro-geomorphic classification and dimensionless hydrographs Belize Lane <i>University of California, USA</i>	Specialist estuarine fishes: not just diadromous transients Nicholas Ling <i>University of Waikato, New Zealand</i>	Reintroduction of invertebrate communities – a field experiment in a German lowland stream Armin Lorenz <i>University of Duisburg-Essen, Germany</i>	The temporal coherence of lake phytoplankton community composition across a regional set of lakes Bingqin Xu * <i>The University of Auckland, New Zealand</i>	Updating the ANZECC water quality guidelines for copper and zinc Chris Hickey <i>NIWA, New Zealand</i>	Measurement and estimation of fine suspended sediment-related attributes in NZ waters Robert Davies-Colley <i>NIWA, New Zealand</i>
11:45am – 12:00pm	Habitat assessment in an irrigation system conjoint with a spring-fed stream Shinji Fukuda <i>Tokyo University of Agriculture and Technology, Japan</i>	Spatio-temporal analysis of geomorphological changes in the Nadi coastal and delta areas Preetika Singh * <i>University of New England, Australia</i>	Riparian shading as a tool to manage nuisance instream plants: testing the concept in Hawkes Bay and Waikato streams and rivers Fleur Matheson <i>NIWA, New Zealand</i>	Investigation of drainage impacts on wetland hydrology, and restoration planning James Blyth <i>Jacobs New Zealand Limited, New Zealand</i>	Isotopes in nitrate and organisms can target opportunities for improved agricultural management to reduce eutrophication. Troy Baisden <i>GNS Science, New Zealand</i>	Using fluorimetry to better assess the effects of suspended sediment on phytoplankton: an agricultural bayou case study Richard Lizotte <i>United States Department of Agriculture, USA</i>
12:00 – 1:30pm	LUNCH			12:30 – 1:30pm “Draft NEMS Water Quality – drop-in discussion” Brooklyn 2 Room		
Session	Special Session: Balancing Environmental Flow Objectives Chair: Paul Franklin	Aquatic Ecosystem Restoration Chair: Jürgen Geist	Threatened Species and Ecosystems Chair: James Shelley	Contaminants Chair: Brenda Baillie	Environmental relationships Chair: Gerry Closs	
1:30pm - 1:45pm	Developing tiered environmental flow targets using a functional flows approach for California streams Rob Lusardi <i>University of California, USA</i>	Aquatic ecosystem restoration: priority setting and indicators of success Jürgen Geist <i>Technical University of Munich, Germany</i>	Sitting on the fence: testing the stock exclusion paradigm on a threatened high country galaxiid Jarred Arthur <i>Environment Canterbury, New Zealand</i>	Mechanism elucidation and performance evaluation of Pb(II) and Cd(II) removal by low-cost <i>Citrullus lanatus</i> rind in batch and continuous systems Qian Wang <i>The Hong Kong Polytechnic University, Hong Kong</i>	Does size matter? The ecological consequences of decreased body size with temperature rise Emma Moffett * <i>The University of Auckland, New Zealand</i>	

Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
1:45pm - 2:00pm	When to "piggyback" an environmental water release: balancing flood risks and environmental outcomes Mike Stewardson <i>The University of Melbourne, Australia</i>	Dispersal and fate of augmented gravel in a boulder-bed channel: early implications for restoring salmonid habitat David Gilvear <i>Plymouth University, United Kingdom</i>	Ecosystem productivity dynamics in a rare chain of ponds system: Mulwaree Ponds, Southern Highlands, New South Wales, Australia Lorraine Hardwick <i>Macquarie University, Australia</i>	Emerging organic contaminants in a predominantly rural aquatic environment – what do we know and should we be worried? Michael Stewart <i>Streamlined Environmental, New Zealand</i>	Allometric body mass – abundance scaling relationships vary in response to a gradient of mining impacts Justin Pomeranz * <i>University of Canterbury, New Zealand</i>	
2:00pm - 2:15pm	Adaptive management of environmental water through Australia's Long-Term Intervention Monitoring project Angus Webb <i>University of Melbourne, Australia</i>	Is riparian vegetation helpful in better management of the riverine corridor? Some tricks to take advantage of a cheap and natural fluvial component Andrew Neverman * <i>Massey University, New Zealand</i>	Assessing Canterbury mudfish (<i>Neochanna burrowsius</i>) translocation viability using a graphical metapopulation model Simon Coats * <i>University of Canterbury, New Zealand</i>	Use of pesticides and fertilisers in New Zealand's planted forests – implications for water quality Brenda Baillie <i>Scion Research, New Zealand</i>	Influence of species, hydrological disturbance, and habitat size on the trophic position - body mass relationship of freshwater fishes Kevin Fraley * <i>University of Canterbury, New Zealand</i>	
2:15pm - 2:30pm	Mapping environmental flow objectives to spatial and temporal scales of response Rick Stoffels <i>CSIRO Land and Water, Australia</i>	Multidimensional evaluation of freshwater restoration efficacy in coastal wetlands: conceptual model from molecules to functional groups of the macrobenthos Xiaoxiao Li * <i>Beijing Normal University, China</i>	Is the Kimberley in remote north-western Australia a cradle of freshwater fish biodiversity or a museum? James Shelley <i>NIWA, New Zealand</i>	Accelerating uptake of constructed wetlands and riparian buffers by quantifying contaminant attenuation performance: a proposed national investigation Aslan Wright-stow <i>DairyNZ, New Zealand</i>	The breeding of a passerine bird, the white-throated dipper <i>Cinclus cinclus</i> , and the potential influence of Atlantic salmon <i>Salmo salar</i> and brown trout <i>Salmo trutta</i> Svein Jakob Saltveit <i>University of Oslo, Norway</i>	
2:30pm - 3:00pm	Afternoon Tea					
3:00pm - 3:45pm	Keynote Speaker – Julian Olden <i>New vision, new life, new hope, for dammed rivers</i> Chair – Angus McIntosh Location: Heaphy 1&2					
3:45pm - 4:15pm	Conference Close Location: Heaphy 1&2					
From 6:30pm	Conference Dinner, Hamilton Gardens Buses depart the Novotel Tainui Hotel at 5:30pm / 5:45pm / 6:00pm Pre-Dinner drinks begin at 6:30pm and guests are to be seated at 7:00pm					