

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



Monday 20 November

8:45am	Welcome and Opening					
9:30 – 10:15am	Keynote Speaker – Gerald Kaufmann <i>Catchments, Watersheds, and Basins: The Global Governance and Policy of International River Science</i> Chair – Bob Penter					
10:15 -10:45am	Morning Tea kindly sponsored by Kessels Ecology					
Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
Session	Special Session: Balancing Human and Ecological Objectives in River Restoration Chair: Gardner Johnston	Special Session: Land-use Effects on In-stream Cycling and Retention of Nitrogen and Phosphorus Chair: Lynn Bartsch	Climate Change Chair: Alexander Milner	Connectivity Chair: Eimear Egan	Aquatic Resource Monitoring Chair: Alton Perrie	
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>US 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>US 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>US 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>	

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>US Geological Survey, USA</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 - 12:00	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>		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					
Session	Special Session: Balancing Human and Ecological Objectives in River Restoration Chair: Keri Nielsen	Special Session: Land-use Effects on In-stream Cycling and Retention of Nitrogen and Phosphorus Chair: John Quinn	Invertebrate Ecology Chair: Richard Storey	Connectivity Chair: Konrad Gorski	Managing Within Limits Chair: 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>	
2:00 - 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 effect 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>	

2:45 - 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>				Exploration of implications of capacity for land use intensification under water quality constraints at national scale Sandy Elliott <i>National Institute of Water and Atmospheric Research</i>	
3:00 - 3:30pm	Afternoon Tea					
3:30 - 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					
4:15 - 6:30pm	Mix & Mingle, Claudelands Upper Concourse Arena					
Tuesday 21 November						
9:00 - 10:00am	Keynote Speaker – Catherine Knight <i>How have we valued New Zealand's rivers? A historical perspective.</i> Chair: Laddie Kuta					
10:00 - 10:30am	Morning Tea					
Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
Session	Special Session: Fish Passage Management Chair: Sjaan Bowie	Special Session: Integrative Methods for Environmental Design of Hydropower Chair: Ana Adeva Bustos	River Water Quality Chair: Jenny Webster-Brown	Connectivity Chair: Josh Smith	Human Health Chair: Gillian Lewis	Indicators and Frameworks Chair: Juliet Milne
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	Fish passage research needs to diversify its concepts and methods to work on a global scale Martin Wilkes <i>Coventry University, United Kingdom</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	Evaluating the likelihood of fish passage success at culverts in New Zealand using expert knowledge Paul Franklin <i>NIWA, 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 GWRC's Natural Resources Plan Lucy Baker <i>Greater Wellington Regional Council, New Zealand</i>
11:15am - 11:30am	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>	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	How effective are spat ropes at providing for fish passage in culverts five years after installation? Dean Miller <i>Tonkin & Taylor, New Zealand</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</i>	'Maintain or Improve': how do we judge that? Graham McBride <i>NIWA, New Zealand</i>

11:45am - 12:00	Impacts of weirs on downstream passage of native fish in the Murray-Darling Basin Craig Boys <i>Charles Sturt University, Australia</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 & ISRS AGM					
Session	Special Session: Fish Passage Management Chair: Bryn Quilter	Special Session: Insights from Long-term Temporal and Large-scale Spatial Datasets Chair: Martin Thoms	Citizen Science and Ecosystem Services Chair: Roger Young	Food Webs Chair: Karen Shearer	Human Health Chair: Rebecca Stott	Mussel Biology and Conservation Chair: 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 trophic interactions in shallow lake food webs using stable isotopes of carbon and nitrogen Michael Pingram <i>Waikato Regional Council, 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>
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 Flourey <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>	Seasonal variations in consumer nitrogen recycling in an oligotrophic lake: a stable isotope study Simon Stewart * <i>University of Waikato, 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>
2:00 - 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>	Canterbury mudfish food webs across a gradient of drought intensity Christopher Meijer * <i>University of Canterbury, 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>	Quantifying basal trophic resources for shallow lake food webs Kevin Collier <i>University of Waikato, 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 Conservations Aotearoa Susan Clearwater <i>NIWA, New Zealand</i>
2:45 - 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
3:00 – 3:30pm	Afternoon Tea					
3:30 - 4:15pm	Keynote Speaker - Sonja Jähnig <i>Modelling riverine biodiversity and ecosystems service delivery - simple, integrated, or complex?</i>					

4:15 - 6:00pm	Poster Session, Claudelands Upper Concourse Arena					
6:30pm	Student Function, Roaming Giant					
6:30pm	SWIM Meeting, venue TBC					
Wednesday 22 November						
9:00 - 10:00am	Keynote Speaker – Gary Brierley <i>A new dawn is upon us: The use of emerging technologies in river science and management</i>					
10:00 -10:30am	Morning Tea					
Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
Session	Special Session: Fish Passage Management Chair: Kati Doehring	Special Session: Making Room For Rivers Chair: Kyle Christensen	Resilience Chair: Elizabeth Graham	Wetlands Chair: Yvonne Taura	Ecohydraulics Chair: John Hayes	Algae and Macrophytes Chair: Cathy Kilroy
10:30am - 10:45am	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>	Vulnerability of freshwater ecosystems to state shifts associated with tipping points Angus McIntosh <i>University of Canterbury, 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>	Invertebrate drift transport modelling: it's been a wild ride! John Hayes <i>Cawthron Institute, New Zealand</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>
10:45am - 11:00am	Na ika i Viti - freshwater issues in the tropical islands of Fiji Kati Doehring <i>Cawthron Institute, New Zealand</i>	Making room for ecology: the importance of lateral aquatic habitats to braided river ecosystem function Duncan Gray <i>Environment Canterbury, New Zealand</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>	Managing wetlands for carbon storage in an agricultural landscape II: project approach and achievements Sarah Ning <i>Murray Darling Wetlands Working Group, Australia</i>	Predicting the effects on mussels of decreased minimum flows James Layzer <i>Tennessee Tech University, USA</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	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>	Defining braided river margins Jo Hoyle <i>NIWA, New Zealand</i>	Sediment geochemistry indicators of lake resilience Sean Waters <i>Cawthron Institute, New Zealand</i>	Te Reo o Te Repo – The voice of the wetland, a cultural wetland handbook Yvonne Taura <i>Manaaki Whenua, 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>	<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	Refinement of fish friendly criteria for hydropower and irrigation diversions Craig Boys <i>Charles Sturt University, Australia</i>	“Big” rivers, big pressures Dave West <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>	Loss of freshwater wetlands since 1990 in Southland, New Zealand: causes and consequences Hugh Robertson <i>Department of Conservation, 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	Downstream migrant eel movements in the lower Waikato River and passage past Huntly power station Cindy Baker <i>NIWA, New Zealand</i>	Vulnerability zone identification and river channel change sensitivity in the Ruamahanga catchment Will Conley * <i>Massey University, New Zealand</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>	An introduction to wetland delineation protocols in the USA Daniel Gerber <i>University of Wisconsin, USA</i>		Redefining “accrual period” improves ability to predict annual maximum chlorophyll a in rivers Cathy Kilroy <i>NIWA, New Zealand</i>
11:45am - 12:00		One small river and one road - so why two large bridges? Iain Smith <i>Beca, New Zealand</i>		Investigation of drainage impacts on wetland hydrology, and restoration planning James Blyth <i>Jacobs New Zealand Limited, New Zealand</i>		Understanding factors that affect macrophytes in agricultural waterways Katie Collins * <i>University of Canterbury, New Zealand</i>
12:00-1:30 pm	LUNCH					

Session	Special Session: Spatial Patterns and Processes of Biota in River Networks Chair: Johannes Radinger	Traditional Knowledge Chair: Julian Williams	Lake Water Quality Chair: David Hamilton	Macroinvertebrate Indicators Chair: Joanne Clapcott	Ecohydraulics Chair: Andrew Neverman	Hydrogeomorphology Chair: 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>	A physical objectives approach to achieving desired periphyton removal using environmental flows Andrew Neverman * <i>Massey University, 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>	Flow-vegetation interactions at the patch scale Hamish Biggs <i>NIWA, New Zealand</i>	Direct and indirect effects of multiples 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>
2:00 - 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 Expérimentale 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>	Non-linear effects of hydrological variability on fish population dynamics in extremely stochastic freshwater ecosystems. Richard White <i>University of Canterbury, 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>
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</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>	A global approach for assessing environmental flow requirements: considering organic matter budget and energy transportation Yui Shinozaki * <i>University of Tsukuba, Japan</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>
2:45 - 3:00pm	Targeting connectivity restoration in inland waters: a spatial network analysis approach Pedro Segurado <i>University of Lisbon, Portugal</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 <i>DICAM University of Trento, Italy</i>
3:00 - 3.30pm	Afternoon Tea					
Session	Special Session: Spatial Patterns and Processes of Biota in River Networks Chair: Johannes Radinger	Traditional Knowledge Chair: Julian Williams	Monitoring Methods Chair: Eloise Ryan	Urban/Stormwater Chair: Damian Young	Fish Ecology Chair: Phil Jellyman	Modelling/Hydrology Chair: Christian Zammit

3:30pm - 3:45pm	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>	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>	Monitoring river use with camera traps Adam Daniel <i>Auckland/Waikato Fish & Game, New Zealand</i>	Watercourse assessment and catchment management in Hamilton City Damian Young <i>Morphum Environmental, New Zealand</i>	Large longfin eels in an unfished Taranaki landslide-dammed lake Dylan Smith <i>University of Waikato, New Zealand</i>	Hydrodynamic catchment to sea modelling Graeme Smart <i>NIWA, New Zealand</i>
3:45pm - 4:00pm	River Network Toolkit – easing freshwater network data management Pedro Segurado <i>University of Lisbon, Portugal</i>	Te Wai Koiora – stream restoration and cultural stream health monitoring Katie Blakemore <i>Taranaki Regional Council, New Zealand</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>	Integrating ecological and stormwater mitigation and offsetting Mark Lowe <i>Morphum Environmental, 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>	Estimating water residence time distribution in river networks by boosted regression trees (BRT) model Meili Feng <i>University of Nottingham Ningbo China, China</i>
4:00pm - 4:15pm	Species distribution and species dispersal models, instruments for tomorrow's river basin management? Daniel Teschlade <i>University of Duisburg-Essen, Germany</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 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>	Watercourse assessment reports: a framework for integrated stream management Michael Lindgreen <i>4sight Consulting, New Zealand</i>	Wet and dry season flows influence juvenile fish abundance in a tropical river Alison King <i>Charles Darwin University, Australia</i>	A new multi-scale approach to predict potential hyporheic exchange flow in rivers Chiara Magliozzi * <i>Cranfield University, United Kingdom</i>
4:15pm - 4:30pm	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>		Drainage geometric networks and catchment management to support freshwater outcomes Emily Reeves <i>Morphum Environmental, 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>	Bottom-up quantification of mega inter-basin water transfer vulnerability to climate change Enze Zhang * <i>Beijing Normal University, China</i>
4:30pm - 4:45pm	A conceptual synthesis of flow-recruitment relationships for riverine fishes Nicole McCasker <i>University Charles Darwin University, Australia</i>			Colourful urban streams: microplastic pollution of the freshwater systems in the Auckland region. Nadia Dikareva * <i>University of Auckland, New Zealand</i>	The impact of didymo on adult trout abundance – has there really been an effect? Phil Jellyman <i>NIWA, New Zealand</i>	Improving instream habitat and mitigation studies with spatially extensive groundwater – surface water interaction models Christian Zammit <i>NIWA, New Zealand</i>
4:45pm - 5:00pm	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>					
5:15pm – 5:45pm	NZFSS Medal Award Plenary - Dr John Hayes - The paradox of integrating immigrants: How salmonids have influenced freshwater values, environmental law and policy, water wars and research in New Zealand					
5:45pm - 6:30pm	NZFSS AGM (Arena Lounge)					
6:00pm – 6:30pm	NZRG AGM (Brooklyn 1)					
From 6:00pm	Special screening of the Lost Rivers Film, organised by Morphum Environmental at Lido Hamilton			Optional Informal Social Function		
Thursday 23 November						
9:00 - 10:00am	Keynote Speaker – Melissa Parsons <i>Extreme floods and river resilience: a social-ecological perspective</i> Chair – Martin Thoms					

Morning Tea						
Location	Heaphy 1	Heaphy 2	Heaphy 3	Brooklyn 1	Brooklyn 2	Brooklyn 3
10:00 -10:30am						
Session	Special Session: Balancing Environmental Flow Objectives Chair: Paul Franklin	Special Session: Estuaries – Environments in Transition Chair: Eleanor Gee	River Restoration Chair: Fleur Matheson	Lake Restoration Chair: Soozie Wood	Water Quality Chair: Chris Hickey	Sediment Chair: Murray Hicks
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</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>
11:15am - 11:30am	Cumulative Hydrological Effects Simulator: a tool for characterising the consequences of water use on multiple values Jan Dietrich <i>NIWA, New Zealand</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>		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 - 12:00	Habitat assessment in an irrigation system conjoint with a spring-fed stream Shinji Fukuda <i>Tokyo University of Agriculture and Technology, Japan</i>	Tidal flood modelling at Dargaville Hugh MacMurray <i>Barnett & MacMurray, New Zealand</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>		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>US Department of Agriculture, USA</i>
12:00 – 1:30pm	LUNCH					
Session	Special Session: Balancing Environmental Flow Objectives Chair: Paul Franklin	Special Session: Estuaries – Environments in Transition Chair: Eleanor Gee	River Restoration Chair: Juergen Geist	Threatened Species and Ecosystems Chair: Duncan Gray	Contaminants Chair: Brenda Baillie	Environmental relationships Chair: Gerry Closs
1:30pm - 1:45pm	Environmental flows for ecosystem function: plausible reality or impossible dream? Fiona Dyer <i>University of Canberra, Australia</i>	Spatio-temporal analysis of geomorphological changes in the Nadi coastal and delta areas Preetika Singh *	Aquatic ecosystem restoration: priority setting and indicators of success Juergen 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	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	Does size matter? The ecological consequences of decreased body size with temperature rise Emma Moffett *

		<i>University of New England, Australia</i>		<i>Environment Canterbury, New Zealand</i>	Qian Wang <i>The Hong Kong Polytechnic University, Hong Kong</i>	<i>The University of Auckland, New Zealand</i>
1:45pm - 2:00pm	Developing tiered environmental flow targets using a functional flows approach for California streams Rob Lusardi <i>University of California, USA</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>	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 Canterbury, New Zealand</i>
2:00 - 2:15pm	When to "piggyback" an environmental water release: balancing flood risks and environmental outcomes Mike Stewardson <i>The 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>	Is the Kimberley in remote north-western Australia a cradle of freshwater fish biodiversity or a museum? James Shelley <i>NIWA, 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	Adaptive management of environmental water through Australia's Long-Term Intervention Monitoring project Angus Webb <i>University of Melbourne, Australia</i>			High country streams and land use change: a sanctuary under pressure Duncan Gray <i>Environment Canterbury, 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 - 2:45pm	Mapping environmental flow objectives to spatial and temporal scales of response Rick J. Stoffels <i>CSIRO Land and Water, Australia</i>					Lateral line morphology and feeding in bullies (<i>Gobiomorphus</i> spp.) Gerry Closs <i>University of Otago, New Zealand</i>
2:45 - 3:15pm	Afternoon Tea					
3:15 - 4:00pm	Keynote Speaker – Julian Olden <i>New vision, new life, new hope, for dammed rivers</i> Chair – Angus McIntosh					
4:00 - 4:30pm	Conference Close					
6:30pm	Conference Dinner, Hamilton Gardens					