

NZ Freshwater Sciences Society 50th Conference



Ka mua, ka muri:
Looking back, moving forward
10-14 December 2018
Rutherford Hotel, Nelson

NZFSS Conference Abstract Programme - 10-14th December 2018 - Nelson

All Concurrent Sessions are based on 15-minute talks (talk 12 min, 3 min Q&A)

* = eligible for Student Prizes

MONDAY 10 DECEMBER					
8.30am		Registration Desk Open			
10.00 - 10.15am		Bus departs Rutherford Hotel for Whakatū marae			
10.30 - 11.00am	POWHIRI	Pōwhiri and Conference Welcome at Whakatū Marae 99 Atawhai Dr, Nelson			
11.00 - 11.25am		MORNING TEA			
11.25 - 12.50pm	KEYNOTE 1/2	Official opening and housekeeping (10 mins) Keynote Speaker 1: Barney Thomas Kaitiaki roles and responsibilities Keynote Speaker 2: Tina Porou Te Mana o te Wai and the experiences of implementing the kaupapa through current planning tools Session Chair: Aneika Young			
12.50pm		Bus returns to Rutherford Hotel			
1.00 – 2.00pm		LUNCH			
	CONCURRENT SESSION 1	Special session: Mātauranga Māori shaping freshwater futures Room: Maitai 2 Chair: Joanne Clapcott	Special session: SETAC ANZECC Room: Maitai 1 Chair: Jennifer Gadd	Special session: Resistance, resilience, restoration Room: Waimea Chair: Elizabeth Graham	Special session: Lake snow Room: Wairau Chair: Marc Schallenberg
2.00 - 2.15pm		Mātauranga Māori shaping marine and freshwater futures. <i>Joanne Clapcott, Cawthron Institute</i>	Key features of the revised Australian and New Zealand Guidelines for Fresh and Marine Water Quality. <i>Rick van Dam, Environmental Research Institute of The Supervising Scientist</i>	Delayed biological recovery after restoration – negative resistance & resilience. <i>Kristy Hogsden & Helen Warburton, University of Canterbury</i>	"Lake snow": mucilaginous planktonic macroaggregates and their effects on lake ecology. <i>Marc Schallenberg, University of Otago</i>
2.15 - 2.30pm		<i>Whakamanahia te mātauranga o te Māori: empowering Māori knowledge to support Aotearoa's aquatic biological heritage.</i> <i>Gary Garner, Te Tira Whakamātaki</i>		Does the past matter? The influence of disturbance history on community resistance to future disturbance. <i>Roland Eveleens, University of Canterbury</i>	The value of archived diatom collections: understanding the spread of <i>Lindavia</i> intermedia in New Zealand. <i>Cathy Kilroy, NIWA</i>
2.30 - 2.45pm		Māori oral tradition and indigenous freshwater knowledge: What do whakataukī tell us? <i>Hēmi Whaanga, University of Waikato</i>	Developing guidance for including Indigenous cultural and spiritual values in water quality management in Australia and New Zealand. <i>Brad Moggridge, University of Canberra</i>	Boosting biological recovery in degraded streams: disturbing degraded communities to reverse the effects of environmental filtering. <i>Issie Barrett, University of Canterbury *</i>	Local Authorities response to <i>Lindavia</i> incursion in New Zealand. <i>Stephanie Dwyer, Lincoln University</i>

2.45 - 3.00pm		Evaluating a traditional Maori harvesting method for sampling stream populations of koura and toi toi. Ian Kusabs, <i>Ian Kusabs and Associates Ltd</i>	Estimation and application of nationwide reference conditions of water quality indicators. Doug Booker, <i>NIWA</i>	Helping plants find their feet – restoring macrophytes in lakes. Deborah Hofstra, <i>NIWA</i>	Taxonomy, provenance, abundance, and activity of <i>Lindavia intermedia</i> as revealed by molecular (and other) methods. Phil Novis, <i>Manaaki Whenua-Landcare Research</i>
3.00 - 3.15pm		Murihiku Cultural Water Classification System: Enduring partnerships between people, disciplines and knowledge systems. Jane Kitson, <i>Kitson Consulting Ltd,</i> Ailsa Cain, <i>Kauati Ltd</i>	Challenges in updating copper and zinc water quality guidelines for Australia and New Zealand. Jennifer Gadd, <i>NIWA</i>	Stream community recovery trajectories following progressive forest harvesting vary by disturbance frequency and magnitude. Elizabeth Graham, <i>NIWA</i>	Vibrational Spectroscopic and Multivariate Analysis of New Zealand 'Lake Snow'. Ruth Sales, <i>University of Otago</i>
3.15 - 3.30pm		He Tohu o te wā – Hangarau pūtaiao. Yvonne Taura, <i>Manaaki Whenua</i>	Considerations for water quality guidelines for emerging contaminants. Louis Tremblay, <i>Cawthron Institute</i>	Is resistance futile? Managing and restoring ecological systems for multiple benefits. Ross Thompson, <i>University of Canberra</i>	Determining the Polysaccharide Composition of the New Zealand Freshwater Biofouler Lake Snow. Cara Luiten, <i>Victoria University of Wellington *</i>
3.30 - 3.45pm		Bicultural lake models to support tāngata whenua in freshwater management. Mereana Wilson-Rooy, <i>QEII Trust *</i>	The challenge of deriving default ecosystem protection guideline values for PFOS in freshwater. Rick van Dam, <i>Environmental Research Institute of The Supervising Scientist</i>		Discussion

3.45 - 4.15pm

AFTERNOON TEA

	CONCURRENT SESSION 2	Session: Mātauranga Māori shaping freshwater futures Room: Maitai 1 Chair: Jane Kitson	Special session: SETAC ANZECC continued Room: Maitai 1 Chair: Jennifer Gadd	Session: Restoration methods Room: Waimea Chair: Deborah Hofstra	Session: Natural history of freshwater biota Room: Wairau Chair: Brian Sorrell
4.15 - 4.30pm		Collaborating with mana whenua. Kathryn Gale, <i>Aukaha</i>	New guidelines and existing freshwater policy: using the best tool for the job. Jennifer Price, <i>Ministry for the Environment</i>	Sediment traps as mechanisms for reducing E. coli concentrations in dairy farm streams. Megan Devane, <i>ESR</i>	Elucidating climate change effects on longfin and shortfin eels using multi-decadal (1960-2012) otolith growth reconstructions. Eimer Egan, <i>NIWA</i>
4.30 - 4.45pm		Tieki wai in the Waiapu. Pia Pohatu, <i>Hīkurangi Takiwā Trust</i> Joanne Clapcott, <i>Cawthron Institute</i>	Issues with using water quality guidelines in management: developing decision-support frameworks. Chris Hickey, <i>NIWA</i>	Trialling stream rehabilitation tools to attenuate high nitrate loads in agricultural headwaters. Brandon Goeller, <i>NIWA *</i>	Bergmann's rule and whitebait: differences in size, age and growth of whitebait across New Zealand. Mike Hickford, <i>University of Canterbury</i>
4.45 - 5.00pm		Me pēhea te whakarauora i ngā repo o Maniapoto - how do we go about restoring the wetlands of Maniapoto? Kelly Ratana, <i>NIWA</i> Ngahuia Herangi <i>Maniapoto Māori Trust Board</i>	EPA use of Australian and New Zealand guidelines for fresh and marine water quality. Richard Mohan, <i>EPA</i>	Stream shade effects on instream plants and comparison of shade measurement methods Fleur Matheson, <i>NIWA</i>	Ninjas in NZ: Red-eared slider turtles are breeding in New Zealand. Nicholas Ling, <i>Waikato University</i>

5.00 - 5.15pm		Discussion	Ngā Pou Mataara: A Māori framework to monitor mauri in the Tukituki Awa. Kate McArthur, <i>Catalyst Group</i>	Stream shade restoration: are canopy shape or channel orientation important? Kit Rutherford, <i>NIWA</i>	Environmental factors affecting the Irrawaddy dolphin (<i>Orcaella brevirostris</i>) distribution in the Mahakam River, East Kalimantan. Februanty Suyatiningsih, <i>University of Waikato *</i>
---------------	--	------------	----------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

CLOSE OF DAY ONE

5.15 - 5.45pm	Tribute to John Quinn (Maitai 1)				
---------------	-----------------------------------------	--	--	--	--

6.00 - 7.30pm	WELCOME FUNCTION // Trafalgar Street Party				
---------------	---------------------------------------------------	--	--	--	--

TUESDAY 11 DECEMBER					
----------------------------	--	--	--	--	--

7.30am	Registration Desk Open				
--------	-------------------------------	--	--	--	--

8.45 - 10.15am	PLENARY 3/4	Housekeeping: (10 mins)			
		Plenary Speaker 3: Russell Death Talk Title: Is Good Science Good Enough? Plenary Speaker 4: Jonathan Tonkin Talk Title: Equipping river ecosystem management for a highly uncertain future Session Chair: Marc Schallenberg			

10.15 - 10.45am	MORNING TEA				
-----------------	--------------------	--	--	--	--

	CONCURRENT SESSION 3	Session: Population ecology and climate	Session: Community ecology	Session: Freshwater science, management and policy	Session: Nutrient modelling
		Room: Maitai 1 Chair: Travis Ingram	Room: Maitai 2 Chair: Robin Holmes	Room: Waimea Chair: Trevor James	Room: Wairau Chair: Hans Eikaas
10.45 - 11.00am		Rapid genetic adaptation offsets plastic increases in body growth rate under warming. David Fryxell, <i>University of Auckland</i>	Spatial abundance and diversity of picocyanobacteria in two lakes with contrasting geomorphology and trophic status. Lena Schallenberg, <i>University of Otago *</i>	Land, Air, Water Aotearoa (LAWA) – Behind the Scenes. Kati Doehring, <i>Cawthron Institute</i> Abi Loughnan <i>LAWA Environmental Monitoring and Reporting Project</i>	Development of the LUCI model for supporting nature-based water resources management in the Vietnam Mekong Delta Anh Nguyet Dang, <i>Victoria University of Wellington *</i>
11.00 - 11.15am		Altering the flow and thermal regimes of river basins changes the growth dynamics of long-lived fishes. Rick Stoffels, <i>NIWA</i>	Effects of intraguild predation on individual specialisation in the Common Bully. Marine Richardson, <i>University of Otago *</i>	Combating in-stream ecological health – from bad to good by picking the low hanging fruit. Duncan Law, <i>Tonkin + Taylor Ltd</i>	Advective transport modelling of Orari Plains water quality. Patrick Durney, <i>Dhi Water and Environment Ltd</i>
11.15 - 11.30am		Thermal adaptation alters the ecological role of consumers. Emma Moffett, <i>University of Auckland *</i>	Are rare macroinvertebrate assemblages driven by distinct environmental factors? Dimitrios Rados, <i>Massey University *</i>	Ecological health monitoring of large river systems: Establishing a Waikato region network. Alicia Catlin, <i>Waikato Regional Council</i>	Dynamic catchment modelling of a New Zealand dairy farming catchment. Linh Hoang, <i>NIWA</i>
11.30 - 11.45am	Can we find a climate-change fingerprint? Detecting recent range shifts among Japan's freshwater-associated species. Kylie Park, <i>Tonkin + Taylor Ltd</i>	Invertebrates associated with macrophytes bought from aquarium stores in Canada and New Zealand. Ian Duggan, <i>Waikato University</i>	Freshwater trends for the Asia-Pacific Region and the importance of training early-career scholars in science-policy Catherine Febria, <i>University of Canterbury</i>	Dairy Typologies: A means to Quantifying the N and P Footprint across Spatial Scales. From Farm to Nation. Hans Eikaas, <i>DairyNZ</i>	

11.45 - 12.00pm		Trophic interactions of kōwaro (Canterbury mudfish) across a gradient of drying intensity Christopher Meijer, <i>University of Canterbury *</i>	SESSION THEME CHANGE: Environmental flows Advancing the assessment of environmental flows for estuaries. Eleanor Gee, <i>NIWA</i>	Eight research areas that could foster ecosystem-based management in fresh waters, if combined. Simone Langhans, <i>University of Otago</i>	A Catchment Accounting Framework for tracing contaminants and calculating loads throughout New Zealand's surface waters. Christophe Thiange, <i>DairyNZ</i>
12.00 - 12.15pm		Carryover effects of larval environment on individual niche variation of adult common bullies. Travis Ingram, <i>University of Otago</i>	A new substrate mapping approach for high resolution habitat suitability assessments when designing environmental flows. Jo Hoyle, <i>NIWA</i>	Can the Integration and Implementation Science framework support better research for land and water policy? Melissa Robson-Williams, <i>Manaaki Whenua Landcare</i>	Can I Trust that Model? eSource Catchment Model Validation, a learning process. Rochelle Carter, <i>Bay of Plenty Regional Council</i>
12.15 - 12.30pm		A toxic puzzle – unravelling the relationship between anatoxin production & strain dominance in <i>Microcoleus autumnalis</i> (<i>Phormidium autumnale</i>). Laura Kelly, <i>Victoria University of Wellington *</i>	Drift transport capacity: what do we know and what does it mean for flow management? Karen Shearer, <i>Cawthron Institute</i> John Hayes, <i>Cawthron Institute</i>		On the need for more rigorous adoption of best practices in environmental modelling. Deniz Özkundakci, <i>Waikato Regional Council</i>
12.30 - 1.30pm LUNCH					
	CONCURRENT SESSION 4	Special session: Swimmability Room: Maitai 1 Chair: Elaine Moriarty	Panel Discussion: Art for freshwater's sake Room: Maitai 2 Chair: Bruce Foster and Charlotte Sunde	Panel Discussion: Freshwater collaboration Room: Waimea Chair: Jim Sinner	Workshop: Freshwater management in urban catchments Room: Wairau Chair: Jonathan Moores
1.30 - 1.45pm		Revisiting New Zealand's recreational water quality guidelines: the freshwater microbiological sciences review project. Elaine Moriarty, <i>ESR</i>			
1.45 - 2.00pm		Public Health Recreational Freshwater Quality Guidelines: What's the story overseas? Beverly Horn, <i>ESR</i>			
2.00 - 2.15pm		Recreational water quality investigation: sources of faecal contaminants. Eloise Ryan, <i>Waikato Regional Council</i>			
2.15 - 2.30pm		Casting a net over the river: Bayesian networks as a real-time prediction tool for swimability. Sarah Pirikahu, <i>ESR</i>			
2.30 - 2.45pm		Near real-time monitoring of microbial water quality in contrasting New Zealand rivers using ColiMinder. Rebecca Stott, <i>NIWA</i>			
2.45 - 3.00pm		Suitability of Brazilian freshwaters for contact recreation. Assessment by a water quality index. Frederico Azevedo Lopes,			

		<i>Universidade Federal de Minas Gerais Brazil</i>			
3.00 - 3.15pm		Discussion			
3.15 - 3.45pm AFTERNOON TEA					
3.45 - 5.15pm	POSTERS	POSTER SESSION (Matai 1 and Maitai 2) Kindly Sponsored by DOC Arawai Kākāriki Wetland Restoration Programme			
CLOSE OF DAY TWO					
5.30 - 7.00pm EARLY CAREER MIXER // Deville's Café, New Street, Nelson SWIM MEETING // Waimea Room					

WEDNESDAY 12 DECEMBER																																		
7.30am Registration Desk Open																																		
8.45 - 10.15am	PLENARY 5/6	Housekeeping (10 mins) Plenary Speaker 5: Emily Bernhardt Surfing the Data Wave at the Frontiers of Freshwater Science Plenary Speaker 6: Yvonne Vadeboncouer Clearing a way back: illuminating the littoral in lakes and limnology Chair: Angus McIntosh																																
10.15 - 10.45am		MORNING TEA																																
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;"></th> <th style="width: 20%;">Session: Aquatic plants and water quality</th> <th style="width: 20%;">Session: Community ecology and biological interactions</th> <th style="width: 20%;">Session: Environmental indicators</th> <th style="width: 20%;">Session: Waterscapes</th> </tr> </thead> <tbody> <tr> <td></td> <td>Room: Maitai 1 Chair: Fleur Matheson</td> <td>Room: Maitai 2 Chair: Catherine Febria</td> <td>Room: Waimea Chair: Richard McDowell</td> <td>Room: Wairau Chair: Sarah Pirikahu</td> </tr> <tr> <td>10.45 - 11.00am</td> <td>Nutrient attenuation in gravel bed rivers: ecosystem service or eutrophication symptom? Ngā tohu o te Tukituki. Kit Rutherford on behalf of John Quinn, NIWA</td> <td>Intriguing trophic structures associated with mudfish pools in South-Westland: not extreme, just size-structured. Angus McIntosh, University of Canterbury</td> <td>The influence of macroscale and microscale habitat factors on invertebrate communities: implications for SoE monitoring. Alastair Suren, Bay of Plenty Regional Council</td> <td>Tracking groundwater contamination using DNA tracers. Liping Pang, ESR</td> </tr> <tr> <td>11.00 - 11.15am</td> <td>Stimulation of river periphyton growth by ammoniacal-N vs. nitrate-N: is there a difference? Logan Brown, Horizons Regional Council</td> <td>Modelling network structure and temporal connectivity in freshwater metacommunities. Finnbar Lee, University of Auckland *</td> <td>Improving the cost-effectiveness of macroinvertebrate state of the environment monitoring. John Stark, Stark Environmental Limited</td> <td>Predicting groundwater contamination using next generation sequencing. Judith Webber, ESR</td> </tr> <tr> <td>11.15 - 11.30am</td> <td>Water we do to - Periphyton and relationships to water quality in the Horizons region. Tom Stephens, Auckland Council</td> <td>Spatial heterogeneity in flow-disturbance influences abundance and temporal stability in native-invasive species co-occurrence in riverscapes. Nixie Boddy, University of Canterbury *</td> <td>Using stationary and aerial red-green-blue and multispectral camera imagery for stream periphyton monitoring. Anika Kuczynski, NIWA</td> <td>What do we know about groundwater ecosystem functions, values and threats? Michelle Greenwood, NIWA</td> </tr> <tr> <td>11.30 - 11.45am</td> <td>Improving our understanding of Southern slime. Roger Hodson, Environment Southland</td> <td>Invasive macrophyte presence and growth form influence plankton communities. Heremerose Matutes, Visayas State University-Alangalang</td> <td>Using sediment fingerprinting to determine the contribution of bank erosion to stream sediment yields. Manawa Huirama, Waikato University *</td> <td>Water balance and groundwater capture zone assessment of Pukepuke Lagoon. Catherine Sturgeon, Jacobs New Zealand Limited</td> </tr> </tbody> </table>					Session: Aquatic plants and water quality	Session: Community ecology and biological interactions	Session: Environmental indicators	Session: Waterscapes		Room: Maitai 1 Chair: Fleur Matheson	Room: Maitai 2 Chair: Catherine Febria	Room: Waimea Chair: Richard McDowell	Room: Wairau Chair: Sarah Pirikahu	10.45 - 11.00am	Nutrient attenuation in gravel bed rivers: ecosystem service or eutrophication symptom? Ngā tohu o te Tukituki. Kit Rutherford on behalf of John Quinn, NIWA	Intriguing trophic structures associated with mudfish pools in South-Westland: not extreme, just size-structured. Angus McIntosh, University of Canterbury	The influence of macroscale and microscale habitat factors on invertebrate communities: implications for SoE monitoring. Alastair Suren, Bay of Plenty Regional Council	Tracking groundwater contamination using DNA tracers. Liping Pang, ESR	11.00 - 11.15am	Stimulation of river periphyton growth by ammoniacal-N vs. nitrate-N: is there a difference? Logan Brown, Horizons Regional Council	Modelling network structure and temporal connectivity in freshwater metacommunities. Finnbar Lee, University of Auckland *	Improving the cost-effectiveness of macroinvertebrate state of the environment monitoring. John Stark, Stark Environmental Limited	Predicting groundwater contamination using next generation sequencing. Judith Webber, ESR	11.15 - 11.30am	Water we do to - Periphyton and relationships to water quality in the Horizons region. Tom Stephens, Auckland Council	Spatial heterogeneity in flow-disturbance influences abundance and temporal stability in native-invasive species co-occurrence in riverscapes. Nixie Boddy, University of Canterbury *	Using stationary and aerial red-green-blue and multispectral camera imagery for stream periphyton monitoring. Anika Kuczynski, NIWA	What do we know about groundwater ecosystem functions, values and threats? Michelle Greenwood, NIWA	11.30 - 11.45am	Improving our understanding of Southern slime. Roger Hodson, Environment Southland	Invasive macrophyte presence and growth form influence plankton communities. Heremerose Matutes, Visayas State University-Alangalang	Using sediment fingerprinting to determine the contribution of bank erosion to stream sediment yields. Manawa Huirama, Waikato University *
	Session: Aquatic plants and water quality	Session: Community ecology and biological interactions	Session: Environmental indicators	Session: Waterscapes																														
	Room: Maitai 1 Chair: Fleur Matheson	Room: Maitai 2 Chair: Catherine Febria	Room: Waimea Chair: Richard McDowell	Room: Wairau Chair: Sarah Pirikahu																														
10.45 - 11.00am	Nutrient attenuation in gravel bed rivers: ecosystem service or eutrophication symptom? Ngā tohu o te Tukituki. Kit Rutherford on behalf of John Quinn, NIWA	Intriguing trophic structures associated with mudfish pools in South-Westland: not extreme, just size-structured. Angus McIntosh, University of Canterbury	The influence of macroscale and microscale habitat factors on invertebrate communities: implications for SoE monitoring. Alastair Suren, Bay of Plenty Regional Council	Tracking groundwater contamination using DNA tracers. Liping Pang, ESR																														
11.00 - 11.15am	Stimulation of river periphyton growth by ammoniacal-N vs. nitrate-N: is there a difference? Logan Brown, Horizons Regional Council	Modelling network structure and temporal connectivity in freshwater metacommunities. Finnbar Lee, University of Auckland *	Improving the cost-effectiveness of macroinvertebrate state of the environment monitoring. John Stark, Stark Environmental Limited	Predicting groundwater contamination using next generation sequencing. Judith Webber, ESR																														
11.15 - 11.30am	Water we do to - Periphyton and relationships to water quality in the Horizons region. Tom Stephens, Auckland Council	Spatial heterogeneity in flow-disturbance influences abundance and temporal stability in native-invasive species co-occurrence in riverscapes. Nixie Boddy, University of Canterbury *	Using stationary and aerial red-green-blue and multispectral camera imagery for stream periphyton monitoring. Anika Kuczynski, NIWA	What do we know about groundwater ecosystem functions, values and threats? Michelle Greenwood, NIWA																														
11.30 - 11.45am	Improving our understanding of Southern slime. Roger Hodson, Environment Southland	Invasive macrophyte presence and growth form influence plankton communities. Heremerose Matutes, Visayas State University-Alangalang	Using sediment fingerprinting to determine the contribution of bank erosion to stream sediment yields. Manawa Huirama, Waikato University *	Water balance and groundwater capture zone assessment of Pukepuke Lagoon. Catherine Sturgeon, Jacobs New Zealand Limited																														

11.45 - 12.00pm		Water quality and periphyton modelling of point source discharge effects. Olivier Ausseil, <i>Aquanet Consulting Ltd</i>	Consumption of kōura in Lake Rotoiti by brown bullhead catfish: a risk assessment. Laura Francis, <i>Waikato University *</i>	Efficacy of a phycocyanin sensor as a surrogate measure of cyanobacterial bloom. Ngaire Phillips, <i>Streamlined Environmental Ltd</i>	Water source and contaminant pathways in the Waioikura catchment, Taranaki, New Zealand. Rob van der Raaij, <i>GNS Science</i>
12.00 - 12.15pm		Eutrophication Risk Assessment: Linking Across Freshwater Environments. Sandy Elliot, <i>NIWA</i>	Macrophytes in an ICOLL: an open and shut case? Mary de Winton, <i>NIWA</i>	Natural Dispersion of Mercury from Puhipuhi, Northland – Revisited. Andrew Rumsby, <i>Pattle Delamore Partners Ltd</i>	Update on the New Zealand water model-hydrology project. Christian Zammit, <i>NIWA</i>
LUNCH (boxed lunch) Rōpū Māori Meeting (Waimea Room)					
	CONCURRENT SESSION 6	Special session: Characterising lake communities Room: Maitai 1 Chair: Susie Wood	Special session: Freshwater citizen science Room: Maitai 2 Chair: Richard Storey	Special session: Land use and freshwater Room: Waimea Chair: Scott Larned	Session: Contaminants and nuisance plants Room: Wairau Chair: Cathry Kilroy
1.30 - 1.45pm		Understanding toxin production in bloom-forming cyanobacteria from New Zealand lakes. Jonathan Puddick, <i>Cawthron Institute</i>	Resourcing and coordinating freshwater citizen science across New Zealand. Richard Storey, <i>NIWA</i>	Worldviews and dogma: Embracing diversity in the science challenge discourse Ken Taylor, <i>Our Land and Water NSC</i>	Preventing the spread of freshwater pests – what’s working and what’s not. Tracey Burton, <i>NIWA</i>
1.45 - 2.00pm		Shifts in the bacterial communities associated with the formation and breakdown of a toxic cyanobacterial scum. Konstanze Steiner, <i>Cawthron Institute</i>	Engage, advise, support – helping communities own their research. Sheryl Miller, <i>Greater Wellington Regional Council</i>	Science to policy and back again: compliant land use practices still cause P leaching. Richard McDowell, <i>Our Land and Water NSC</i>	Pesticides in New Zealand’s running waters: a survey of agricultural streams. Christoph Matthaei, <i>University of Otago</i>
2.00 - 2.15pm		Development and implementation of a robust, regionally representative water quality monitoring network for lakes. Mark Hamer, <i>Waikato Regional Council</i>	Citizen Science and Freshwater Monitoring in Aotearoa from an NGO Perspective. Liz Gibson, <i>Mountains to Sea Wellington, The Whitebait Connection.</i> Kim Jones <i>Mountains to Sea Conservation Trust, The Whitebait Connection</i>	The land use suitability concept: A Southland case study. Amy Whitehead, <i>NIWA</i>	Towards more realistic ecotoxicology: evaluating chronic effects of neonicotinoids using a ubiquitous New Zealand mayfly. Sam Macaulay, <i>University of Otago *</i>
2.15 - 2.30pm		Are non-indigenous fishes exploiting empty niches in lacustrine environments? Alton Perrie, <i>Greater Wellington Regional Council *</i>	Empowering the community; volunteers monitor hut River 'swimmability'. Juliet Milne, <i>NIWA</i>	Sediment delivery from erosion source to catchment outlet – where should erosion-management be focussed? Arman Haddadchi, <i>NIWA</i>	Deconstructing individual chemical stressors in two contrasting catchments. Michael Stewart, <i>Streamlined Environmental Ltd</i>
2.30 - 2.45pm		Improving lake marginal habitat for native fish using structure. David Kelly, <i>Cawthron Institute</i>	Florida LAKEWATCH: Citizen Scientists protecting Florida’s aquatic systems. Mark Hoyer, <i>University of Florida</i>	Land-use effects on aquatic ecosystems: strengthening the evidence-base. Scott Larned, <i>NIWA</i>	Stressor dominance and sensitivity-dependent antagonism: Disentangling freshwater insecticide and agricultural stressor effects. Jon Bray, <i>University of Canberra</i>
2.45 - 3.00pm		Changes at the edge: food web impacts of degradation of littoral habitats. Simon Stewart, <i>Cawthron Institute</i>	What were we swimming in? Citizen study of the water quality in Lake Wanaka, NZ. Chris Arbuckle, <i>Aspiring Environmental</i>	Recent advances in reporting and interpreting water quality trends. Ton Snelder, <i>LWP Ltd</i>	Environmental drivers of Microcoleus (Phormidium) blooms in the Maitai River, Nelson and development of a predictive model. Georgia Thomson-Laing, <i>Cawthron Institute</i>

3.00 - 3.15pm		Learning from the past to identify lake resilience and enhance restoration. Marcus Vandergoes, <i>GNS Science</i>	Nature Agents – Participatory Science for Environmental Improvement. Kirsty Brennan, <i>EOS Ecology</i>	Investigation of Methods to Predict Groundwater Redox Status Using Limited Sample Data. Scott Wilson, <i>Lincoln Agritech</i>	PFAS in New Zealand Fish: Is this the next threat to our aquatic ecosystems? Nerena Rhodes, <i>Pattle Delamore Partners Ltd</i>
3.15 - 3.45pm AFTERNOON TEA					
	CONCURRENT SESSION 7	Special session: Characterising lake communities continues Room: Maitai 1 Chair: Susie Wood	Special session: Freshwater citizen science continues Room: Maitai 2 Chair: Richard Storey	Special session: Land use and freshwater continues Room: Waimea Chair: Scott Larned	Special session: Freshwater mussels Room: Wairau Chair: Sue Clearwater
3.45 - 4.00pm		Ecosystem services at Lake Wairarapa: insights into its past, present, and future. Sky Halford, <i>Victoria University of Wellington *</i>	Citizen science invertebrate monitoring provides similar assessments of ecological health as professional monitoring. Martin Neale, <i>Puhoi Stour Ltd</i>	CLUES calibration – can we use CLUES to estimate attenuation? Annette Semadeni-Davies, <i>NIWA</i>	Characterising the fish fauna associated with freshwater mussels in Waikato streams. Nicole Hanrahan, <i>NIWA *</i>
4.00 - 4.15pm		Tracking historical cyanobacterial communities in five contrasting shallow New Zealand lakes. Maily Picard, <i>Cawthron Institute *</i>	Assuring quality of community-based water monitoring data. Rob Davies-Colley, <i>NIWA</i>	A regional council application of tools – taking the road less travelled. Elaine Moriarty, <i>Environment Southland</i>	Temporal partitioning of reproductive resources in two sympatric Echyridella freshwater mussel species in Waikato streams. Michele Melchior, <i>Waikato University *</i>
4.15 - 4.30pm		One shakey lake: Impacts from 1000 years of natural tectonic disturbance on in-lake communities. Katie Brasell, <i>Cawthron Institute *</i>	Project Baseline Lake Pupuke Initiative, a case study for effective citizen science. Ebrahim Hussein, <i>Auckland Council</i>	Measuring actual denitrification to understand nitrogen attenuation. Heather Martindale, <i>GNS Science</i>	Glochidial development of the New Zealand freshwater mussel (<i>Echyridella menziesii</i>) on non-indigenous fish. Tom Moore, <i>Waikato University *</i>
4.30 - 4.45pm		Reconstructing lake diatom community change: comparing novel DNA metabarcoding with traditional morphological techniques. Rose Gregersen, <i>University of Auckland *</i>	Discussion	Variability of <i>E.coli</i> in rivers: implications for interpretation of grab samples. Richard Muirhead, <i>AgResearch</i>	Can kākahi (<i>Bivalvia: Hyriidae</i>) prey on non-indigenous <i>Daphnia</i> ? Anita Pearson, <i>Waikato University *</i>
4.45 - 5.00pm		Lake sediment as sentinels of historical food web dynamics: A case study of two eutrophic lakes in Central Otago, New Zealand. Samiullah Khan, <i>University of Otago *</i>	Discussion	The Illinois River Watershed, USA – The Convergence of Science and Policy. Brian Haggard, <i>University of Arkansas</i>	The biology of kākahi a taonga species, insights into restoration across waterways in Canterbury. Channell Thoms, <i>University of Canterbury *</i>
CLOSE OF DAY THREE					
5.00 – 6.30pm NZFSS AGM // Maitai 1					
7.00 – 8.30pm Public Seminar // Maitai 1					

THURSDAY 13 DECEMBER					
7.30am Registration Desk Open					
8.45 - 10.15am	PLENARY 7/8	Housekeeping (10 mins)			
		Plenary Speaker 7: Neil Deans NZFSS – 50yrs young Plenary Speaker 8: Hon David Parker Making Polluted Rivers Clean again Chair: Roger Young			
10.15 - 10.45am	MORNING TEA				

	CONCURRENT SESSION 8	Session: Fish and fisheries Room: Maitai 1 Chair: Kati Doehring	Session: Wetlands, lakes and estuaries Room: Maitai 2 Chair: David Kelly	Session: Urban streams Room: Waimea Chair: Timothy Hopley	Session: Water quality Room: Wairau Chair: Olivier Ausseil
10.45 - 11.00am		The New Zealand Whitebait Fishery - current knowledge and research gaps. Jane Goodman, <i>Department of Conservation</i>	Wetlands Must Be Wet: Paludiculture for the Climate and the Future. Brian Sorrell, <i>Aarhus University</i>	Environmental Education for Auckland's Industry - Industrial Pollution Prevention Programme. Rhianna Drury, <i>Auckland Council</i>	Fire Water: The effect of the 2017 wildfires on the streams of the Port Hills, Canterbury. Jenny Webster-Brown, <i>Waterways Centre for Freshwater Management</i>
11.00 - 11.15am		Trapping methods: evaluating soak time, fish density, predator presence, and baiting for inanga population assessments. Andrew Watson, <i>University of Canterbury *</i>	Nutrient load limit setting for estuaries - the New Zealand Estuary Trophic Index approach. David Plew, <i>NIWA</i>	Assessing flow and nutrient contributions from rheocrene springs and groundwater seepage in two urban waterways. Belinda Margetts, <i>Christchurch City Council</i> Peter Callander <i>PDP Ltd</i>	Stream and sediment chemistry interact to control dissolved reactive phosphorus concentrations at baseflow. Zach Simpson, <i>Lincoln University *</i>
11.15 - 11.30am		Whitebait wizardry: modelling the composition of a mixed species fishery. Bridget Armstrong, <i>University of Canterbury *</i>	Nutrient thresholds for protecting wetland ecological integrity. Hugh Robertson, <i>Department of Conservation</i>	Understanding what's left: assessing the ecological health of Wellington's urban streams to inform Waitua Te Whanganui-a-Tara. Evan Harrison, <i>Greater Wellington Regional Council</i>	Changes in the water chemistry of Cannel Creek following remedial works at Bellvue Mine. Marlese Fairgray, <i>University of Canterbury *</i>
11.30 - 11.45am		New Zealand Whitebait – Assessment of Ecosystem Services. Hannah Mueller, <i>Tonkin + Taylor Ltd</i>	Denitrification and burial of N and P in lakes explain seasonality of algal growth limitation. Piet Verburg, <i>NIWA</i>	Lifting the lid on piped streams. Alex James, <i>EOS Ecology</i>	Land-use and Waterway Quality at Mt. Grand Station, New Zealand. Shyam Provost, <i>Lincoln University *</i>
11.45 - 12.00pm		Behavioural response of Taupo anglers to new liberal fishing regulations. Michel Dedual, <i>Department of Conservation</i>	Waiwiri: Trembling waters, beauty of the South...plans to restore a Manawatu lake catchment. Phillipe Gerbeaux, <i>Department of Conservation</i>	Heavy metal contamination from storm water in an industrial catchment and the relationship with antecedent dry periods. Timothy Hopley, <i>University of Auckland/Auckland Council</i>	Comparison of traditional and emerging methods of trend analysis and load calculation in Lake Rotorua streams. James Dare, <i>Bay of Plenty Regional Council</i>
12.00 - 12.15pm		Brown trout natal homing in the Taieri River estimated by otolith microchemistry. Pavel Mikheev, <i>University of Otago *</i>	A case study: linking catchment land use management to lake water quality. Keryn Roberts, <i>Environment Southland</i>	Monitoring and salvage of kākahi (<i>Echyridella menziesii</i>) in a non-wadeable lowland river subject to dredging. Greg Burrell, <i>Instream</i>	What's to blame for low oxygen in streams – effluent, stream flow, macrophytes or groundwater? Thomas Wilding, <i>Hawkes Bay Regional Council</i>
12.15 - 12.30pm		DOC's freshwater fish monitoring – what, why, when, where and how? Natasha Petrove, <i>Department of Conservation</i>	Valuing rural riparian zones and wetland areas. Carla Muller, <i>NIWA</i>		Long-term trends in water quality of Canterbury's high-country lakes. Tina Bayer, <i>Environment Canterbury</i>
12.30 - 1.30pm LUNCH					
	CONCURRENT SESSION 9	Workshop: Fish passage guidelines Room: Matai 1 Chair: Eleanor Gee	Special session: MfE policy update Room: Maitai 2 Chair: Alison Collins	Workshop: Multi-Criteria Decision Analysis Room: Waimea Chair: Simone Langhans	Special session: Constructed wetlands Room: Wairau Chair: Rebecca Eivers
1.30 - 1.45pm			Key policy priorities in Water and Climate Change. Cheryl Barnes, <i>Ministry for the Environment</i>		Constructed wetlands for dairy run-off: are they working? Suzanne Lambie, <i>Manaaki Whenua - Landcare Research</i>

1.45 - 2.00pm			The Water policy work programme Martin Workman, <i>Ministry for the Environment</i>		Accelerating uptake of constructed wetlands through recognition of performance in the limit-setting process. Aslan Wright-stow, <i>DairyNZ</i>
2.00 - 2.15pm			Science in contested places: principles and roles. Alison Collins, <i>Ministry for the Environment</i>		Constructed wetlands to reduce contaminant losses from agriculture: what don't we know? Chris Tanner, <i>NIWA</i>
2.15 - 2.30pm			The science and policy interface 'on the front lines'. James King <i>Ministry for the Environment</i>		Design considerations for constructed treatment wetlands mitigating diffuse pollution from intensive agricultural catchments. Rebecca Eivers, <i>Streamlined Environmental Ltd *</i>
2.30 - 2.45pm			Ecosystem Health – a new framework to focus our water science and policy. Carl Howath, <i>Ministry for the Environment</i>		Constructed wetlands – the good, the bad and the ugly. James Sukias, <i>NIWA</i>
2.45 - 3.00pm			Discussion		A GIS model to assess the landscape suitability for installation of storm water detainment bunds. John Paterson <i>Phosphorus Mitigation Project</i>
3.00 - 3.15pm					Discussion
3.15 - 3.45pm AFTERNOON TEA					
3.45 - 4.45pm	PLENARY 9	PECHA KUCHA Stream rehabilitation in NZ: unscrambling eggs or turning ecological lemons into lemonade? A PhD in 7mins. Robin Holmes, Cawthron Institute. Conservation status of New Zealand freshwater invertebrates – 2018 update. Tom Drinan, Department of Conservation Faecal Indicator Bacteria in New Zealand Freshwater Fish: A Pilot Study. Sarah Coxon, ESR Were the New Zealand and Australian graylings (<i>Prototroctes</i> spp.) distinct species? Gerry Closs, University Of Otago Drain impacts to wetland hydrology, and restoration planning. James Blyth, Jacobs NZ Kaikōura Earthquake - the many crossings along the road to recovery. Tanya Blakely, Boffa Miskell Ltd The Final Frontier: Using enterprise modelling to implement freshwater accounting. Mark Heath, GWRC DOC's Freshwater Stretch Goal "50 freshwater ecosystems restored - from mountains to the sea" Tracie Dean-Speirs, Department Of Conservation			
4.45 - 5.00pm	CLOSE	Official Conference Close			
6.30 - 11.30pm CONFERENCE DINNER // Trafalgar Centre, Paru Paru Rd, Nelson Kindly Sponsored by Nelson Forests Ltd					

FRIDAY 14 DECEMBER	
<p>Various Times, please check the conference handbook</p>	FIELD TRIPS // All departing from Rutherford Hotel