2nd May 2023

08:00 - 09:00	**Workshop Registration** The Arts Administration Building	
09:00 - 10:00	**Workshop 1: Network analysis workshop** AA 205 Organized by Brian Fath[1], Stuart Borrett[3] *[1]Towson University, Towson, MD, USA. [2]University of KwaZulu-Natal, South Africa. [3]University of North Carolina Wilmington, USA*	**Workshop 2: Getting started with Python and scikit-learn for analyzing observational data from the TRY Plant Trait Database** AA 206 Organized by Gustavo Giudici[1], Felipe Cabrera[2] *[1]University of Buenos Aires, Argentina. [2]University of Buenos Aires, Buenos Aires, Argentina*
10:00 - 10:15	**Break (for workshop attendees only)**	
10:15 - 12:00	**Workshop 1: Network analysis workshop (continued)** AA 205 Organized by Brian Fath and Stuart Borrett	**Workshop 2: Getting started with Python and scikit-learn for analyzing observational data from the TRY Plant Trait Database (continued)** AA 206 Organized by Gustavo Giudici and Felipe Cabrera
12:00 - 13:00	**Lunch (for workshops attendees only)**	
13:00 - 15:00	**Workshop 1: Network analysis workshop (continued)** AA 205 Organized by Brian Fath and Stuart Borrett	**Workshop 2: Getting started with Python and scikit-learn for analyzing observational data from the TRY Plant Trait Database (continued)** AA 206 Organized by Gustavo Giudici and Felipe Cabrera
15:00 - 15:15	**Break (for workshop attendees only)**	

15:15 - 17:00	**Workshop 1: Network analysis workshop (continued)** AA 205 Organized by Brian Fath and Stuart Borrett	**Workshop 2: Getting started with Python and scikit-learn for analyzing observational data from the TRY Plant Trait Database (continued)** AA 206 Organized by Gustavo Giudici and Felipe Cabrera
16:00 - 18:30	**Conference registration** Highland Hall Event Center	
17:00 - 18:30	**Welcome Drinks Reception and Poster Session 1** Highland Hall Event Center	

3rd May 2023

08:00 - 09:00	**Registration** Highland Hall Event Center			
09:00 - 09:30	**Welcome and Introductions** AC 223			
09:30 - 09:40	**ISEM Best Young Research Award Announcement** AC 223			
09:40 - 10:20	**Plenary Session 1** AC 223 George Arhonditsis **09:40 - 10:20 [Plenary 1]** **Process-based ecohydrological modelling to predict water futures** John Pomeroy *University of Saskatchewan, Saskatoon, SK, Canada*			
10:20 - 10:50	**Refreshment Break** Highland Hall Event Center			
10:50 - 12:30	**Session 1** AC 223 Cosimo Solidoro **10:50 - 11:10 [O01.1]** **Predicting lake responses to climate change in terms of its thermal structure and bottom water hypoxia** Serghei Bocaniov[1], Kevin Lamb[1], Yerubandi R. Rao[2], Philippe Van Cappellen[1] [1]*University of Waterloo, Waterloo, ON, Canada.* [2]*Water Science & Technology, Environment and Climate Change Canada, Canberra, Canada* **11:10 - 11:30 [O01.2]** **Impacts of sea-level rise on the tidal marshes and estuarine biochemical processes** Nicole Cai[1,2], Jian She[2], Joseph Zhang[2], Qubin Qin[2], Lewis Linker[3]	**Session 2** MW 160 George Arhonditsis **10:50 - 11:10 [O02.1]** **Towards the development of ensemble modelling frameworks to support adaptive management: What did we learn from Lake Erie?** George Arhonditsis *University of Toronto, Scarborough, ON, Canada* **11:10 - 11:30 [O02.2]** **Comprehensive calibration of a SWAT model for watershed management in the Lake Erie basin: Part 1 – Iterative calibration of submodels** Sophia Zamaria[1], George Arhonditsis[2] [1]*University of Toronto, Toronto, ON, Canada.* [2]*University of Toronto Scarborough, Toronto, ON, Canada*	**Session 3** MW 170 Tae-Soo Chon **10:50 - 11:10 [O03.1]** **Incorporating lattice structure and spatial network models into simulation of spatially-explicit dispersal of the Western conifer seedbug populations due to human-assisted invasion in Korea** Tae-Soo Chon[1,2,3], Xiaodong Zhang[3], Dae-Seong Lee[4], Young-Seuk Park[4], Muyoung Heo[5] [1]*Incheon National Univ., Republic of Korea.* [2]*Ecology and Future Research Institute, Republic of Korea.* [3]*Pusan National Univ., Republic of Korea.* [4]*Kyung Hee Univ., Republic of Korea.* [5]*Research Solution Center, Institute of Basic Research, Republic of Korea* **11:10 - 11:30 [O03.2]**	**Session 4** MW120 Linke Potgieter **10:50 - 11:10 [O04.1]** **Climate-competition interactions affecting future northward migration of temperate tree species into mixedwood boreal forest** Maxence Soubeyrand[1], Fabio Gennaretti[1], Olivier Blarquez[2], Yves Bergeron[1,3], Philippe Marchand[1] [1]*Université du Québec en Abitibi-Témiscamingue, Canada.* [2]*Université de Montréal, Canada.* [3]*Université du Québec à Montréal, Canada* **11:10 - 11:30 [O04.2]** **Landscape configurations of refuge areas that delay the evolution of resistance to Bt sugarcane: an individual-based modelling approach**

	[1]*ORISE Research Participation Program at EPA,, USA.* [2]*Virginia Institute of Marine Science, USA.* [3]*U.S. Environmental Protection Agency, USA* **11:30 - 11:50 [O01.3]** **A new approach using an unstructured grid model coupled with particle tracking to investigate hydrodynamics modulating water quality conditions in urban shallow waters** Qubin Qin[1], Jian Shen[1], Xun Cai[2] [1]*Virginia Institute of Marine Science, USA.* [2]*ORISE Research Participation Program at EPA, USA* **11:50 - 12:10 [O01.4]** **In-lake phosphorus load to the Lake St. Clair – Lake Erie system: Insights from a long-term phosphorus mass-balance** Serghei Bocaniov[1], Donald Scavia[2], Philippe Van Cappellen[1] [1]*University of Waterloo, Waterloo, ON, Canada.* [2]*University of Michigan, Ann Arbor, MI, USA* **12:10 - 12:30 [O01.5]** **Modelling river water temperature dynamics across western Canada** Rajesh Shrestha, Jennifer Pesklevits *Environment and Climate Change Canada, Burlington, ON, Canada*	**11:30 - 11:50 [O02.3]** **Comprehensive calibration of a SWAT model for watershed management in the Lake Erie basin: Part 2 – Introducing irrigation scheduling models** Sophia Zamaria[1], George Arhonditsis[2] [1]*University of Toronto, Toronto, ON, Canada.* [2]*University of Toronto Scarborough, Toronto, ON, Canada* **11:50 - 12:10 [O02.4]** **Challenges in the development of a long-term adaptive P management tool in the Bay of Quinte, Ontario** Aisha Javed[1], Alex Neumann[1], Carlos Alberto Arnillas[1], Agnes Richards[2], Shan Mugalingam[3], George Arhonditsis[1] [1]*University of Toronto Scarborough, Toronto, ON, Canada.* [2]*Environment and Climate Change Canada, Burlington, ON, Canada.* [3]*Lower Trent Conservation, Trenton, Ontario,, Canada* **12:10 - 12:30 [O02.5]** **The Coorong Dynamics Model (CDM): An integrated platform for simulating ecosystem response of Australia's Coorong Lagoon using the AED framework** Matthew Hipsey[1], Peisheng Huang[1], Brendan Busch[1], Daniel Paraska[1], Sherry Zhai[1], Claire Sims[2] [1]*The University of Western Australia, Australia.* [2]*Government of South Australia, Australia*	**Re-establishment of the Eurasian otter (Lutra lutra) in South Korea from 2000 to 2020: the contributions of environmental improvement and conservation policy** Sungwon Hong[1], Philip Stephens[2], Hyo Gyeom Kim[3] [1]*Kyungpook National University, Republic of Korea.* [2]*Durham University, UK.* [3]*University of Adelaide, Adelaide, Australia* **11:30 - 11:50 [O03.3]** **Dispersal simulation of an invasive species (*Leptoglossus occidentalis*) with an agent-based model** Dae-Seong Lee[1], Yang-Seop Bae[2], Tak-Ki Lee[2], Young-Seuk Park[1] [1]*Kyung Hee University, Seoul, Republic of Korea.* [2]*Incheon National University, Incheon, Republic of Korea* **11:50 - 12:10 [O03.4]** **Improvement of species distribution model with imbalanced data using a synthetic minority oversampling technique** Dae-Seong Lee[1,2], Sagar Adhurya[1], Young-Seuk Park[1] [1]*Kyung Hee University, Republic of Korea.* [2]*Incheon National University, Republic of Korea* **12:10 - 12:30 [O03.5]** **Does horizontal shape type of logging areas affect forest mammal?** Mihyeon Kim[1], Joo Seong Kim[1], Agus Ariyanto[1], Hyo Gyeom Kim[2], Sungwon Hong[1] [1]*Kyungpook National University, Republic of Korea.* [2]*University of Adelaide, Australia*	Linke Potgieter, Dirk Human *Stellenbosch University, Stellenbosch, South Africa* **11:30 - 11:50 [O04.3]** **Modelling the effect of sterile insect releases in combination with refuge areas on the evolution of resistance to Bt sugarcane: an individual-based modelling approach** Linke Potgieter, Dirk Human, Samantha Downing *Stellenbosch University, Stellenbosch, South Africa* **11:50 - 12:10 [O04.4]** **Assessing individual-based model use in policy: Ensuring your model is utilized** Chelsea Gray[1,2], Dale Rothman[1], Erin Peters-Burton[1], Cynthia Smith[1], Chris Parsons[3] [1]*George Mason University, USA.* [2]*Irish Basking Shark Group, Ireland.* [3]*University of Glasgow, UK* **12:10 - 12:30 [O04.5]** **Using state-dependent life-history theory models to explore individual and population level responses to environmental change in a marine predator** Cassie Speakman[1], Elizabeth McHuron[2], John Arnould[1] [1]*Deakin University, Burwood, Australia.* [2]*Cooperative Institute for Climate Ocean and Ecosystem Studies, Seattle, WA, USA*
12:30 - 14:00	**Lunch and Poster Session 1 continued** Highland Hall Event Center			
14:00 - 15:40	**Session 5** AC 223 Serghei Bocaniov **14:00 - 14:20 [O05.1]**	**Session 6** MW 160 Santosh Ghimire **14:00 - 14:20 [O06.1]**	14:00 - 15:20 **Session 7** MW 170 Tae-Soo Chon **14:00 - 14:20 [O07.1]**	14:00 - 15:20 **Session 8** MW120 Linke Potgieter **14:00 - 14:20 [O08.1]**

	Sensitivity of seasonal ice-cover, water temperature and biogeochemical processes in a small cold region lake to climatic drivers Yonas Dibike, Rebecca Marshall, Laurent de Rham *Environment and Climate Change Canada, Canada* **14:20 - 14:40 [O05.2]** **Globally threatened mangrove species under climate change risk and land cover changes** Arimatéa C. Ximenes, Daniel Murdiyarso *Center for International Forestry Research, Bogor Barat, Indonesia* **14:40 - 15:00 [O05.3]** **Modelling the effects of Hazardous and Noxious Substances (HNS) throughout a typical seamount food web** Ana Azevedo, Alexandra Guerra, Fabiola Amorim, Irene Martins *CIIMAR - Interdisciplinary Centre of Marine and Environmental Research, Portugal* **15:00 - 15:20 [O05.4]** **Sorry, we are closed! Trade-offs between fisheries, marine protected areas and offshore wind farms in the southern North Sea** Miriam Püts[1], Alexander Kempf[1], Christian Möllmann[2,3], Marc Taylor[1] [1]*Thünen Institute of Sea Fisheries, Germany.* [2]*University of Hamburg, Germany.* [3]*Institute of Marine Ecosystem and Fishery Science, Germany* **15:20 - 15:40 [O05.5]** **Condition index as an indicator of stock status: insights from composite modelling** Ines Haberle[1], Lav Bavčević[2], Tin Klanjscek[1] [1]*Ruđer Bošković Institute, Zagreb, Croatia.* [2]*University of Zadar, Zadar, Croatia*	**Modeling watershed and climate controls on tributary concentration-discharge (C-Q) relationships across watersheds in the Great Lakes** Georgina Kaltenecker[1], George Arhonditsis[1], Carl Mitchell[1], Todd Howell[2] [1]*University of Toronto Scarborough, Toronto, ON, Canada.* [2]*Ontario Ministry of the Environment Conservation and Parks, Toronto, ON, Canada* **14:20 - 14:40 [O06.2]** **Withdrawn** **14:40 - 15:00 [O06.3]** **Rewilding the sea to trigger ecosystem recovery and foster economic activities? an exploratory approach and a discussion through prospective** Catherine Boemare *School of Advanced Studies in Social Sciences, Paris, France* **15:00 - 15:20 [O06.4]** **Using the information theoretic concept of empowerment to quantify sustainability in a model of tipping climate elements** Jan T Kim, Daniel Polani *University of Hertfordshire, Hatfield, UK* **15:20 - 15:40 [O06.5]** **Modeling impacts of climate change on large mammal species of China** Xuehua Liu, Babar Zahoor, Bismay Ranjan Tripathy, Felipe Perez *Tsinghua University, China*	**Introducing a multi-model Monte Carlo fire hazard assessment tool: BurnP3+** Chris Stockdale[1], Shree Senthivasan[2], Brett Moore[3], Leonardo Frid[2] [1]*Northern Forestry Centre, Canada.* [2]*Apex RMS, Canada.* [3]*Northern Forestry Centre, Edmonton, AB, Canada* **14:20 - 14:40 [O07.2]** **Monitoring biodiversity loss in rapidly changing Afrotropical ecosystems: An emerging imperative for governance and research** Alfred Achieng[1], George Arhonditsis[2], Catherine Febria[3], Benard Opaa[4], Frank Masese[1], Tracey Coffey[5], Kevin Obiero[6], Zephaniah Ajode[7], Ken Irvine[8], Boaz Kaunda-Arara[1] [1]*University of Eldoret, Kenya.* [2]*University of Toronto, Canada.* [3]*University of Windsor, Canada.* [4]*National Land Commission, Kenya.* [5]*University of Nottingham, UK.* [6]*Kenya Marine and Fisheries Research Institute, Kenya.* [7]*African Center for Aquatic Research and Education, USA.* [8]*IHE Delft Institute for Water Education, The Netherlands* **14:40 - 15:00 [O07.3]** **Arabian Leopard: save it from extinction** Alaaeldin Soultan *The Royal Commision for AlUla, Saudi Arabia* **15:00 - 15:20 [O07.4]** **Combined impacts of climate change and non-indigenous species arrivals on Bay of Biscay trophic network structure and functioning** Marie Le Marchand[1,2], Frida Ben Rais Lasram[3], Emma Araignous[2], Blanche Saint-Béat[4], Géraldine Lassalle[5], Nicolas Michelet[2], Sandrine Serre[1], Georges Safi[2], Morgane Lejart[2], Nathalie Niquil[6] [1]*Université de Bretagne Occidentale, France.* [2]*France Energies Marines, France.* [3]*Université Littoral Côte d'Opale, France.* [4]*Ifremer, France.* [5]*Inrae, France.* [6]*Université de Caen, France*	**Withdrawn** **14:20 - 14:40 [O08.2]** **Interactions between defoliating insects and climate change alter forecasts of forest change** Hiromitsu Sato, Stephen J. Mayor *Ontario Ministry of Natural Resources and Forestry, Canada* **14:40 - 15:00 [O08.3]** **Understanding the importance of fine root biomass estimates when projecting long-term forest growth under climate change** Antonio Yeste[1], Juan A. Blanco[1], J. Bosco Imbert[1], Helena Zozaya-Vela[1], Martín Elizalde-Arbilla[1], David Candel-Pérez[1], Yueh-Hsin Lo[1], Ximena Herrera-Álvarez[1], Brad Seely[2] [1]*Universidad Pública de Navarra, Spain.* [2]*The University of British Columbia, Vancouver, BC, Canada* **15:00 - 15:20 [O08.4]** **Modelling ecosystems as autopoietic reaction networks** Tomas Veloz[1,2], Claudio Ramirez[3] [1]*VUB University, Brussel, Belgium.* [2]*Metropolitan Technological University, Santiago, Chile.* [3]*University of Talca, Talca, Chile*
15:40 - 16:10	**Refreshment Break**			

	Highland Hall Event Center			
16:10 - 17:30	**Session 9** AC 223 Yuko Shimoda **16:10 - 16:30 [O09.1]** **Plankton community structure, biodiversity, and related ecological services** Cosimo Solidoro, Marco De Pasquale, Marco Fianchini *National Institute of Oceanography and Experimental Geophysics, Sgonico, Italy* **16:30 - 16:50 [O09.2]** **Using catch organisms' life history traits to model broad habitat types for soft sediments** Bernadine Everett[1], Sean Fennessy[1], Fiona MacKay[1], Julius Okondo[2], Mary Kishe[3], Rui Mutombene[4], Jean-Jacques Be[5] [1]*Oceanographic Research Institute, Durban, South Africa.* [2]*Kenya Marine and Fisheries Research Institute, Mombasa, Kenya.* [3]*Tanzania Fisheries Research Institute, Dar es Salaam, Tanzania, United Republic of.* [4]*National Institute of Oceanography of Mozambique, Maputo, Mozambique.* [5]*Ministère de la Pêche et de l'Economie Bleue (MPEB), Madagascar* **16:50 - 17:10 [O09.3]** **Emergent model applications in biodiversity conservation and environmental management** Hsiao-Hsuan Wang[1], Diogo Alagador[2], William Grant[1], Tomasz Koralewski[1], Frederico Mestre[2], Andrzej Pękalski[3], William Rogers[1], Fred Smeins[1], Michael Treglia[4], Carissa Wonkka[5] [1]*Texas A&M University, USA.* [2]*University of Évora, Portugal.* [3]*University of Wrocław, Poland.* [4]*The Nature Conservancy - NYS Cities Program, USA.* [5]*Northern Plains Agricultural Research Laboratory, USDA-ARS, USA*	16:10 - 17:10 **Session 10** MW 160 Robert Jenkins **16:10 - 16:30 [O10.1]** **Implications of the presence of an endemism in the planning of land use: application to the case of "Vella lucentina" in Monforte del Cid (Alicante) Spain** Zbigniew Emil Blesa Marco, Jose Navarro Pedreño, Asuncion Maria Agullo Torres, Francisco Jose Del Campo Gomis *Universidad Miguel Hernandez de Elche, Spain* **16:30 - 16:50 [O10.2]** **Nest-site selection of ground-nesting Passerines in a forest nature reserve revealed by LiDAR scanning data** Bin Wang[1,2], Cameron Proctor[2], Zhiming Zhang[1], Kang Luo[3] [1]*Yunnan University, Kunming, China.* [2]*University of Windsor, Windsor, ON, Canada.* [3]*Chinese Academy of Sciences, Beijing, China* **16:50 - 17:10 [O10.3]** **Withdrawn**	**Session 11** MW 170 Tae-Soo Chon **16:10 - 16:30 [O11.1]** **Withdrawn** **16:30 - 16:50 [O11.2]** **Predicting species interactions with machine learning to develop a metaweb and its decomposition to local webs to understand the environmental effect** Sagar Adhurya, Dae-Seong Lee, Da-Yeong Lee, Young-Seuk Park *Kyung Hee University, Seoul, Republic of Korea* **16:50 - 17:10 [O11.3]** **Assessing urban carbon metabolism using ecological network analysis across Chinese and European cities** Brian Fath *Towson University, USA. International Institute for Applied Systems Analysis, Laxenburg, Austria. Masaryk University, Brno, Czech Republic* **17:10 - 17:30 [O11.4]** **How long will it take for the Tiger to invade? Modelling the time of arrival of the Asian tiger mosquito (Aedes albopictus) in new countries** Sandra Oliveira, César Capinha, Jorge Rocha *University of Lisbon, Lisboa, Portugal*	**Session 12** MW120 George Arhonditsis **16:10 - 16:30 [O12.1]** **Bayesian parameterization of coupled behaviour-disease models** Sefah Frimpong[1], Chris Bauch[2] [1]*University of Waterloo, Waterloo, ON, Canada.* [2]*University of Waterloo, Canada* **16:30 - 16:50 [O12.2]** **Development of software tools to perform uncertainty and sensitivity analysis in global estimations of greenhouse emissions in the livestock sector** Armando Rivera[1], Timothy Robinson[2], Dominik Wisser[2], Alessandra Falcucci[2], Giuseppe Tempio[2], Marius Gilbert[1] [1]*University of Brussels - ULB, Bruxelles, Belgium.* [2]*Food and Agriculture Organization of the United Nations, Roma, Italy* **16:50 - 17:10 [O12.3]** **Analysing range shifts of grassland birds using Bayesian integrated spatiotemporal species distribution models in INLA, and 40 years of observation data** Joris Wiethase[1], Philip Mostert[2], Colin Beale[1] [1]*University of York, York, UK.* [2]*Norwegian University of Science and Technology, Trondheim, Norway* **17:10 - 17:30 [O12.4]** **Automatic calibration of a three-dimensional hydrodynamic and water quality model using machine learning** Hamed Ebrahimi Ghalinghie[1], Leon Boegman[1], Reza Valipour[2] [1]*Department of Civil Engineering, Queen's University, Kingston, ON, Canada.* [2]*Environment and Climate Change Canada, Burlington, ON, Canada*

	17:10 - 17:30 [O09.4] **Identifying potential dispersal corridors under climate change conditions: A study of deciduous temperate forest reserve in Japan** Pavithra Rangani Wijenayake[1], Takashi Masaki[1], Yasuhiro Kubota[2], Takuto Shitara[3] [1]*Forestry and Forest Products Research Institute, Tsukuba, Japan.* [2]*University of the Ryukyus, Okinawa, Japan.* [3]*Tama Forest Science Garden, Forestry and Forest Products Research Institute, Tokyo, Japan*			

4th May 2023

<table>
<tr><td>09:00 - 10:20</td><td colspan="4">Plenary Session 2
AC 223
George Arhonditsis

09:00 - 09:40 [Plenary 2]
Unpredictability of algal blooms: towards a resolution?
David Hamilton
Australian Rivers Institute, Griffith University, Brisbane, Australia

09:40 - 10:20 [Plenary 3]
Advances in explanatory and predictive modelling in ecology by evolutionary algorithms
Friedrich Recknagel
The University of Adelaide, Australia</td></tr>
<tr><td>10:20 - 10:50</td><td colspan="4">Refreshment Break
Highland Hall Event Center</td></tr>
<tr><td>10:50 - 12:30</td><td>Session 13
AC 223
Laura Ganley

10:50 - 11:10 [O13.1]
Individualised niches in a variable environment - consequences for environmental change responses
Anastasiia Enne, Meike Wittmann, Peter Nabutanyi, Vishnu Venugopal
Bielefeld University, Bielefeld, Germany

11:10 - 11:30 [O13.2]
A multi-model framework to inform the conservation of elasmobranch populations and explore the ecological impacts of their restoration in the Mediterranean Sea
Carlo Zampieri, Alberto Barausse
University of Padua, Padova, Italy

11:30 - 11:50 [O13.3]
Species distributions models for projecting impacts of climate change and management implications for a data poor fishery species, barred surfperch Amphistichus argenteus</td><td>Session 14
MW 160
Reza Valipour

10:50 - 11:10 [O14.1]
Integrating existing hydrogeomorphic and mechanistic vegetation models in a salt marsh system
Emily Russ[1], Taylor Cagle[2], Todd Swannack[1]
[1]US Army Engineer Research and Development Center Environmental Laboratory, Vicksburg, MS, USA. [2]US Army Engineer Research and Development Center Coastal and Hydraulics Laboratory, Vicksburg, MS, USA

11:10 - 11:30 [O14.2]
Exploring individual interactions in group behavior of fish in 2D and 3D spaces by artificial intelligence and spatio-temporal analyses of movement tracks
Chunlei Xia[1,2], Tae-Soo Chon[2,3]
[1]Yantai Institute of Coastal Zone Research, CAS, Yantai, China. [2]Ecology and Future Research Institute (EnFRI), Republic of Korea. [3]Pusan National University, Geumjeong-gu, Republic of Korea</td><td>Session 15
MW 170
Sophia Zamaria

10:50 - 11:10 [O15.1]
Testing niche similarity between native and invaded range for 106 invasive alien plant species in India: Prioritization of management actions
Amiya Ranjan Bhowmick[1], Jyoti Jagdish Prajapati[1], Achyut Kumar Banerjee[2], Abhishek Mukherjee[3]
[1]Institute of Chemical Technology, Mumbai, India. [2]Sun Yat-Sen University, Guangzhou, China. [3]Indian Statistical Institute, Kolkata, India

11:10 - 11:30 [O15.2]
Maintenance of mutualistic variation within and between species
Abdel Halloway
University of Illinois Urbana-Champaign, Urbana, IL, USA. Purdue University, West Lafayette, IN, USA

11:30 - 11:50 [O15.3]</td><td>Session 16
MW120
Alexander Nascou

10:50 - 11:10 [O16.1]
Castles built on sand or predictive ecology in action? Evaluation of the current trends in the field of model-based management
George Arhonditsis
University of Toronto, Scarborough, ON, Canada

11:10 - 11:30 [O16.2]
Development of dynamic greenhouse gas emission and carbon sequestration models in Canadian wetlands: A serial ensemble approach
Yoji Uno, George Arhonditsis
University of Toronto Scarborough, Scarborough, ON, Canada

11:30 - 11:50 [O16.3]
Withdrawn

11:50 - 12:10 [O16.4]</td></tr>
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	Michelle Marraffini, Jessica Madden, David Hubbard, Jenifer Dugan *University of California Santa Barbara, Santa Barbara, CA, USA* **11:50 - 12:10 [O13.4]** **Withdrawn** **12:10 - 12:30 [O13.5]** **Prediction of stream food web characteristics based on habitat conditions** Da-Yeong Lee, Dae-Seong Lee, Sagar Adhurya, Young-Seuk Park *Kyung Hee University, Republic of Korea*	**11:30 - 11:50 [O14.3]** **Neural network models for catch prediction of bottom otter trawling using water quality and fish catch data** Shota Suzuki[1], Shigeru Tabeta[1], Takuya Maruyama[2], Katsunori Mizuno[1] [1]*The University of Tokyo, Kashiwa, Japan.* [2]*Mie Prefecture Fisheries Research Institute, Kashiwa, Japan* **11:50 - 12:10 [O14.4]** **A machine learning and model-agnostic approach to identify the factors potentially explaining the use of agricultural land** Cláudia M. Viana, Jorge Rocha *University of Lisbon Institute of Geography and Spatial Planning, Lisboa, Portugal* **12:10 - 12:30 [O14.5]** **Automatic animal detection from camera trap images** Tommi Mononen *University of Helsinki, HELSINKI, Finland*	**Strategy for managing context-dependency of metacommunity framework through the agent-based model and public data sets** Jurek Kolasa, Jessica Marchesan, Kevin Zheng *McMaster University, Canada* **11:50 - 12:10 [O15.4]** **Foraging personalities modify effects of habitat fragmentation on biodiversity** Marie-Sophie Rohwäder[1], Florian Jeltsch[1,2] [1]*University of Potsdam, Potsdam, Germany.* [2]*Free University of Berlin Berlin-Brandenburg Institute of Advanced Biodiversity Research, Berlin, Germany* **12:10 - 12:30 [O15.5]** **Stationarity of food webs in a complex marine biogeochemical model** Guido Occhipinti[1,2], Cosimo Solidoro[1], Roberto Grimaudo[3], Davide Valenti[3], Paolo Lazzari[1] [1]*National Institute of Oceanography and Applied Geophysics - OGS, Italy.* [2]*Università degli Studi di Trieste, Italy.* [3]*Università degli Studi di Palermo, Italy*	**Predicting the effects of climate change on schistosoma transmitting snails using ecological models in Mpumalanga, South Africa** Nisa Ayob, Roelof Burger, Ncobile Nkosi, Dirk Cilliers *North-West University, South Africa* **12:10 - 12:30 [O16.5]** **Using the thermal sensitives of a parasite's life cycle to explain its geographical distribution: the case of a rapidly spreading muskox lungworm** Alexander Nascou[1], Pratap Kafle[2], Susan Kutz[3], Peter Molnar[1] [1]*University of Toronto Scarborough, Toronto, ON, Canada.* [2]*Long Island University, Brookville, NY, USA.* [3]*University of Calgary, Calgary, AB, Canada*
12:30 - 14:00	**Lunch and Poster Session 2** Highland Hall Event Center			
14:00 - 15:40	**Session 17** AC 223 Xuehua Liu **14:00 - 14:20 [O17.1]** **Right wind: Resolving protected species space-use conflicts in wind energy areas** Laura Ganley[1], Daniel Pendleton[1], Aaron Rice[2], Ian Spooner[3], Jessica Redfern[1] [1]*Anderson Cabot Center for Ocean Life, New England Aquarium, USA.* [2]*Cornell University, USA.* [3]*Lautec, USA* **14:20 - 14:40 [O17.2]** **Prioritizing invasive plant treatment using GIS-based multicriteria decision analysis**	**Session 18** MW 160 Reza Valipour **14:00 - 14:20 [O18.1]** **A standard protocol for describing the evaluation of ecological models** Benjamin Planque[1], Johanna Aarflot[1], Lucie Buttay[2], Jolynn Carroll[3], Filippa Fransner[4], Cecilie Hansen[1], Bérengère Husson[1], Noel Keenlyside[4], Øystein Langangen[2], Ulf Lindstrøm[1], Evelyn Strombom[5] [1]*Institute of Marine Research, Norway.* [2]*University of Oslo, Norway.* [3]*Akvaplan Niva, Norway.* [4]*University of Bergen, Norway.* [5]*University of Minnesota, USA*	**Session 19** MW 170 Sophia Zamaria **14:00 - 14:20 [O19.1]** **Modelling cladophora dynamics: An emerging challenge in the Great Lakes** Yasasi Fernando[1], George Arhonditsis[1], Mathew Wells[1], David Depew[2], Agnes Richards[2] [1]*University of Toronto Scarborough, Scarborough, ON, Canada.* [2]*Environment and Climate Change Canada, Burlington, ON, Canada* **14:20 - 14:40 [O19.2]**	**Session 20** MW120 Aisha Javed **14:00 - 14:20 [O20.1]** **Withdrawn** **14:20 - 14:40 [O20.2]** **Water quality impacts of riparian buffer zones: A case study in the Albemarle-Pamlico river basin (USA) using HAWQS** Santosh Ghimire[1], Joel Corona[1], Rajbir Parmar[1], Gouri Mahadwar[2], Raghavan Srinivasan[3], Katie Mendoza[3] [1]*United States Environmental Protection Agency, USA.* [2]*Oak Ridge Institute for Science*

	Joshua Cohen[1,2], Helen Enander[1,2], Clay Wilton[1,2], Tyler Bassett[1,2], Ashley Cole-Wick[1,2] [1]*Michigan Natural Features Inventory, USA.* [2]*Michigan State University Extension, East Lansing, MI, USA* **14:40 - 15:00 [O17.3]** **Environmental drivers of North Atlantic marine food webs** Amy Shurety[1,2], Eoin O'Gorman[1], Tom Cameron[1], Elena Couce[2], Murray Thompson[2] [1]*University of Essex, Colchester, UK.* [2]*Centre for Environment Fisheries and Aquaculture Science, Lowestoft, UK* **15:00 - 15:20 [O17.4]** **5 million years of climatic dynamics: Do time, area, and climatic stability play a key role in shaping/explaining global biodiversity?** Sofía Galván[1], Sara Gamboa[1,2], Sara Varela[1] [1]*Universidade de Vigo, Spain.* [2]*Universidad Complutense de Madrid, Spain* **15:20 - 15:40 [O17.5]** **Projecting the state of the Mediterranean Sea ecosystem under future climate** Cosimo Solidoro, Paolo Lazzari, Gianpiero Cossarini, Donata Canu, Giorgio Bolzon, Stefano Salon *National Institute of Oceanography and Experimental Geophysics, Sgonico, Italy*	**14:20 - 14:40 [O18.2]** **Withdrawn** **14:40 - 15:00 [O18.3]** **Circulation and water quality on-demand forecasts to support coastal ecosystem management** Marta Rodrigues, Anabela Oliveira, André B. Fortunato, Gonçalo de Jesus, Ricardo Martins, Luís David *Laboratório Nacional de Engenharia Civil, Portugal* **15:00 - 15:20 [O18.4]** **Universal platform for mosquito population control planning using AI** Domagoj Hackenberger[1,2], Tamara Djerdj[3,4], Branimir Hackenberger[5,4] [1]*Josip Juraj Strossmayer University of Osijek, Croatia.* [2]*SCIOM Ltd., Osijek, Croatia.* [3]*BioQuant Ltd., Croatia.* [4]*Josip Juraj Strossmayer University of Osijek, Osijek, Croatia.* [5]*SCIOM Ltd., Croatia* **15:20 - 15:40 [O18.5]** **Spatio-temporal network analysis using metapopulation models in addressing advancement patterns of invasive nutria (*Myocastor coypus*)** KyoungEun Lee[1], Do-Hun Lee[1], Tae-Soo Chon[2] [1]*National Institute of Ecology, Republic of Korea.* [2]*Ecology and Future Research Institute, Republic of Korea*	**Dynamic salmon lice control and background infection pressure estimates through a simplified salmon lice epidemic model** Guttorm Alendal[1], Anna Oleynik[1], Ingrid · Askeland Johnsen[2], Jarle Berntsen[1] [1]*University of Bergen, Bergen, Norway.* [2]*Institute of Marine Research, Bergen, Norway* **14:40 - 15:00 [O19.3]** **Using ecosystem models simulations followed by Global Sensitivity Analysis to prioritize the effects of environmental stressors on coastal systems under global warming scenarios** Irene Martins[1], Ana Azevedo[1], Alexandra Guerra[1], Allan T. Souza[2], Martina Ilarri[1], Teresa Neuparth[1], Joana Soares[3], Aldo F. Barreiro[1], Marina Dolbeth[1], Miguel M. Santos[1] [1]*CIIMAR, University of Porto, Portugal.* [2]*Institute of Hydrobiology, Biology Centre CAS, Czech Republic.* [3]*AIR Centre, Portugal* **15:00 - 15:20 [O19.4]** **Study on Spatio-temporal distribution of reef-associated fish in the South China Sea and the East China sea using Maxent and neural networks** Jia Wang, Shigeru Tabeta *Department of Environmental Systems, the University of Tokyo, Japan* **15:20 - 15:40 [O19.5]** **Modelling phosphorus dynamics in tropical semiarid reservoirs** Iran Lima Neto[1], Maria de Jesus Delmiro Rocha[1], Maria Aparecida Melo Rocha[1], Mário Ubirajara Gonçalves Barros[2] [1]*Federal University of Ceará, Brazil.* [2]*Water Resources Company of Ceará, Brazil*	*and Education, USA.* [3]*Texas A&M University, USA* **14:40 - 15:00 [O20.3]** **Key steps toward a holistic crop modelling framework** Carlos Alberto Arnillas, Lamees Shah, Alex Neumann, George Arhonditsis *University of Toronto Scarborough, Scarborough, ON, Canada* **15:00 - 15:20 [O20.4]** **Risk modeling of pathogens in captured rainwater: Application of QMRA to human exposure from on-site, non-potable, fit-for-purpose stormwater use** John Johnston[1], David Demaree[2,1], Santosh Ghimire[1], Michael Jahne[1] [1]*United States Environmental Protection Agency, Washington, DC, USA.* [2]*Oak Ridge Institute for Science and Education, Washington, DC, USA* **15:20 - 15:40 [O20.5]** **Assessing riparian proper functioning condition (PFC) for improved ecosystem services: a case study of the Back Creek watershed (Virginia)** Santosh Ghimire[1], Brian Schumacher[1], Sherman Swanson[2], Robert Hall[3] [1]*US Environmental Protection Agency Office of Research and Development, Washington, DC, USA.* [2]*University of Nevada Reno, Reno, NV, USA.* [3]*US EPA Region 9 Retiree, USA*
15:40 - 16:10	**Refreshment Break** Highland Hall Event Center			
16:10 - 17:30	**Session 21** AC 223 Laura Ganley	**Session 22** MW 160 Reza Valipour	**Session 23** MW 170 Aisha Javed	**Session 24** MW120 Carlos Arnillas Alberto

	16:10 - 16:30 [O21.1] **Peaks over quantiles: A method for analyzing trends in time series under unknown heterogeneity and dependence structure** Markus Fritsch, Harry Haupt *University of Passau, Passau, Germany* **16:30 - 16:50 [O21.2]** **5 million years of disruption: Exploring the effect of environmental fragmentation in species richness and diversification** Sara Gamboa[1,2], Sofía Galván[1], Sara Varela[1] [1]*Universidade de Vigo, Spain.* [2]*Complutense University of Madrid, Madrid, Spain* **16:50 - 17:10 [O21.3]** **The Lagoon of Venice Climate scenarios projections with the finite element hydrodynamic model SHYFEM-CLIM** Donata Melaku Canu, Leslie Aveytua-Alcazar, Celia Laurent, Ginevra Rosati, Cosimo Solidoro *National Institute of Oceanography and Experimental Geophysics, Sgonico, Italy* **17:10 - 17:30 [O21.4]** **Evaluating extreme climate at local scale: How good are the global circulation models?** Akunne Okoli, George Arhonditsis *University of Toronto Scarborough, Toronto, ON, Canada*	**16:10 - 16:30 [O22.1]** **What is next for process-based modelling in large lakes** Reza Valipour *Environment and Climate Change Canada, Canada* **16:30 - 16:50 [O22.2]** **Characterization of the governance network for land management: what does its geolocation imply?** Luisa Fernanda Díez-Echavarría[1,2], Clara Villegas-Palacio[2], Santiago Arango-Aramburo[2], Driss Ezzine-de-Blas[3] [1]*Instituto Tecnológico Metropolitano, Colombia.* [2]*Universidad Nacional de Colombia, Colombia.* [3]*Cirad - Agricultural Research for Development, France* **16:50 - 17:10 [O22.3]** **Data extraction and aggregation to model microbial health risk associated with rainwater harvesting** David Demaree[1,2], John Johnston[2], Michael Jahne[2], Santosh Ghimire[2] [1]*Oak Ridge Institute for Science and Education (ORISE), USA.* [2]*U.S. Environmental Protection Agency (US EPA), USA* **17:10 - 17:30 [O22.4]** **Analysis of covid-19 management with logic constraint: application of neural network** Ruby Arshid, Shafaq Naz *University of Gujrat, Gujrāt, Pakistan*	**16:10 - 16:30 [O23.1]** **Using system-inspired metrics to improve water quality prediction in stratified lakes** Kamilla Kurucz[1], Matthew Hipsey[2], Cayelan Carey[3] [1]*University of Western Australia, Perth, Australia.* [2]*University of Western Australia, Australia.* [3]*Virginia Tech, USA* **16:30 - 16:50 [O23.2]** **Modelling water quality in Lake Winnipeg via a three-dimensional process-based model (AEM3D)** Shuqi Lin *Environment and Climate Change Canada, Gatineau, QC, Canada* **16:50 - 17:10 [O23.3]** **Meta-ecosystem modelling of aquatic-terrestrial material flow** Adeel Ahmed, Andreas Lorke, Alessandro Manfrin, Ralf B Schäfer *University of Koblenz Landau, Landau, Germany* **17:10 - 17:30 [O23.4]** **Eutrophication modelling in the Bay of Quinte: Connecting Harmful Algal Blooms (HABs) with the sustainability of fisheries** Yuko Shimoda[1], Haibin Cai[2], George Archontitsis[2] [1]*Environment Canada and Climate Change, and communication, Toronto, ON, Canada.* [2]*University of Toronto Scarborough, Toronto, ON, Canada*	**16:10 - 16:30 [O24.1]** **Understanding the impact of water quality model precision on economic benefit estimates in environmental policy** Kristen Swedberg[1,2,3], Joel Corona[1] [1]*United States Environmental Protection Agency, Office of Water, Washington, DC, USA.* [2]*Oak Ridge Institute for Science and Education, Oak Ridge, TN, USA.* [3]*Virginia Polytechnic Institute and State University, Blacksburg, VA, USA* **16:30 - 16:50 [O24.2]** **Identification of invasion hotspots for invasive alien plants in India under climate change using species distribution modeling: an ensemble machine learning approach** Jyoti Prajapati[1,2], Abhijit Singh[1], Achyut Kumar Banerjee[3], Amiya Ranjan Bhowmick[2], Abhishek Mukherjee[1] [1]*Indian Statistical Institute, Giridih, India.* [2]*Institute of Chemical Technology, Mumbai, India.* [3]*Sun Yat-sen University School of Life Science, Guangzhou, China* **16:50 - 17:10 [O24.3]** **Multi-scale multi-model integration for forest ecology and management** Stephen Mayor[1], Eric Searle[1], Hiromitsu Sato[1], Wayne Bell[1], Guy Laroque[2], Mathew Leitch[3] [1]*Ontario Forest Research Institute, Canada.* [2]*Canadian Forest Service, Canada.* [3]*Lakehead University, Thunder Bay, ON, Canada* **17:10 - 17:30 [O24.4]** **Nature-based solutions for health and economic-informed microclimate modelling** Mohamed Dardir[1], Jeffrey Wilson[1], Umberto Berardi[2] [1]*University of Waterloo, Canada.* [2]*Toronto Metropolitan University, Canada*
17:30 - 18:00	**ISEM General Meeting** (open to all registered delegates) AC223			

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09:00 - 10:20	**Plenary Session 3** AC 223 George Arhonditsis **09:00 - 09:40 [Plenary 4]** **Modelling the effects of human activity on the North Sea ecosystem** Karline Soetaert *Netherlands Institute of Sea Research, The Netherlands* **09:40 - 10:20 [Plenary 5]** **Biodiversity and ecosystem stability across spatial scales** Shaopeng Wang *Peking University, China*			
10:20 - 10:50	**Refreshment Break** Highland Hall Event Center			
10:50 - 12:30	**Session 25** AC 223 Hsiao-Hsuan Wang **10:50 - 11:10 [O25.1]** **Applicability assessment of river fish habitat evaluation software DHABSIM to large rivers using environmental DNA** Masahiko Sekine, Ryohei Nakao, Yoshihisa Akamatsu *Yamaguchi University, Yamaguchi, Japan* **11:10 - 11:30 [O25.2]** **Quantify agricultural impacts on GHG emissions at major cash crops farms in a changing climate in Ontario, Canada** Ratnajit Saha, Alexey Neumann, Carlos Alberto Arnillas, George B. Arhonditsis *University of Toronto, Canada* **11:30 - 11:50 [O25.3]** **Application of Bayesian inference techniques for calibrating regional empirical watershed models in Canada**	10:50 - 12:10 **Session 26** MW 160 Matthew Hipsey **10:50 - 11:10 [O26.1]** **Assessment of threats in a small watershed using geo-spatial techniques and Rasch model** Mark Anthony Abella, Sherwin Balbuena *Dr. Emilio B. Espinosa, Sr. Memorial State College Of Agriculture And Technology, The Philippines* **11:10 - 11:30 [O26.2]** **Urban resilience index: Case study of six global cities within the RECREATE project** Bruno Oliveira[1], Brian D. Fath[2,1] [1]*International Institute for Applied Systems Analysis, Laxenburg, Austria.* [2]*Towson University, Towson, MD, USA* **11:30 - 11:50 [O26.3]** **Predicting forest ecosystem vulnerabilities under climate change: using ensemble classification to predict response under climate change** Zihaohan Sang, Andreas Hamann	**Session 27** MW 170 Tin Klanjscek **10:50 - 11:10 [O27.1]** **Simulating bacterial species dynamics** Nicholas Blackburn[1], Ulla Li Zweifel[2], Pia Haecky[1], Åke Hagström[3] [1]*BIORAS ApS, Denmark.* [2]*University of Gothenburg Swedish Institute for the Marine Environment, Göteborg, Sweden.* [3]*Linneaus University Centre for Ecology and Evolution in Microbial model Systems, Kalmar, Sweden* **11:10 - 11:30 [O27.2]** **Development of a generalized process-based vegetation model** Candice Piercy, Emily Russ, Carra Carrillo, Todd Swannack *US Army Engineer Research and Development Center, Vicksburg, MS, USA* **11:30 - 11:50 [O27.3]** **Modeling CO2 cycle and evaluating the long-term effects of climate change in Lake Biwa** Eiji Komatsu[1,2], Yuichi Sato[3], Hideaki Nagare[4]	10:50 - 12:10 **Session 28** MW120 Carlos Alberto Arnillas **10:50 - 11:10 [O28.1]** **Space dependent parameters in an optimized large scale biogeochemical model** Paolo Lazzari[1], Eva Álvarez[1], Simone Spada[1], Gianpiero Cossarini[1], Guido Occhipinti[2,3], Jorn Bruggeman[4], Stefano Ciavatta[5], Anna Teruzzi[1] [1]*National Institute of Oceanography and Applied Geophysics - OGS, Italy.* [2]*National Institute of Oceanography and Applied Geophysics - OGS,, Italy.* [3]*Università degli Studi di Trieste, Italy.* [4]*Bolding & Bruggeman ApS, Denmark.* [5]*Mercator Ocean international, France* **11:10 - 11:30 [O28.2]** **History and advancement of crop modelling** Lamees Shah, Carlos Alberto Arnillas, George Arhonditsis *University of Toronto, Toronto, ON, Canada* **11:30 - 11:50 [O28.3]**

	Alex Neumann[1], Agnes Blukacz-Richards[2], Felix Ouellet[2], Ratnajit Saha[3], George Arhonditsis[3] [1]*University of Toronto, Toronto, ON, Canada.* [2]*Environment and Climate Change Canada, Burlington, ON, Canada.* [3]*University of Toronto Scarborough, Scarborough, ON, Canada* **11:50 - 12:10 [O25.4]** **Withdrawn** **12:10 - 12:30 [O25.5]** **Predicting wildlife abundance and distribution accurately from low-resolution areal data using disaggregation regression** Kilian Murphy, Simone Ciuti, Virginia Morera-Pujol *University College Dublin, Dublin, Ireland*	*University of Alberta, Edmonton, AB, Canada* **11:50 - 12:10 [O26.4]** **Community coexistence in a changing world: Using individual energetics to link environmental conditions to biodiversity** Leonna Szangolies[1], Cara Gallagher[1], Florian Jeltsch[1,2] [1]*University of Potsdam, Potsdam, Germany.* [2]*Free University of Berlin Berlin-Brandenburg Institute of Advanced Biodiversity Research, Berlin, Germany*	[1]*Meiji University, Japan.* [2]*Lercs Inc., Japan.* [3]*Lake Biwa Environmental Research Institute, Japan.* [4]*Okayama University, Japan* **11:50 - 12:10 [O27.4]** **When model input uncertainty challenges reasonable inference** Casey Lott[1], Bridgett Costanzo[2], Jeffery Larkin[3] [1]*Conservation Science and Data Visualization, LLC, USA.* [2]*Natural Resources Conservation Service, Working Lands for Wildlife Coordinator East and Central, USA.* [3]*Indiana University of Pennsylvania, USA* **12:10 - 12:30 [O27.5]** **Spatio-temporal optimisation of SIT mosquito population control - reinforcement learning approach** Tamara Djerdj[1,2], Domagoj Hackenberger[3,4], Branimir Hackenberger[5,2] [1]*BioQuant Ltd., Croatia.* [2]*Josip Juraj Strossmayer University of Osijek, Osijek, Croatia.* [3]*Josip Juraj Strossmayer University of Osijek, Croatia.* [4]*SCIOM Ltd., Osijek, Croatia.* [5]*SCIOM Ltd., Croatia*	**Modelling non-compliance in a kelp fishery network from a social-ecological perspective** M. Isidora Ávila-Thieme[1,2,3], Sergio A. Navarrete[1,2,4], Nicole Maturana[5], C. Josh Donlan[3,6,2], Stefan Gelcich[1,2] [1]*Pontificia Universidad Católica de Chile, Chile.* [2]*Coastal Social-Ecological Milennium Institute (SECOS), Chile.* [3]*Advanced Conservation Strategies (ACS), USA.* [4]*Universidad de Concepción, Chile.* [5]*Undersecretary of Fisheries and Aquaculture (SUBPESCA), Chile.* [6]*Cornell University, USA* **11:50 - 12:10 [O28.4]** **Green infrastructure as tools to achieve well-being in the Andean urban socio-ecological system** Santiago Bonilla-Bedoya[1], Miguel Ángel Herrera[2] [1]*Universidad Tecnológica Indoamérica, Ecuador.* [2]*Universidad de Córdoba, Spain*
12:30 - 14:00	**Lunch and Poster Session 2 continued** Highland Hall Event Center	**Editor Speed Review** HL106 Your chance to sign up for a ten-minute session with an EcoMod editor to get immediate feedback on a paper in preparation. Sign-up is available at the registration desk. When you register, submit your title, abstract, and keywords (as well as institution). Discuss the journal scope, paper novelty, audience, and framing and other issues that might come up before a paper is sent for review.		
14:00 - 15:40	**Session 29** AC 223 Alex Neumann **14:00 - 14:20 [O29.1]** **Geospatial decision support systems for sustainable management of dry forest land and ecosystem services: A review of approaches and methods** Zelalem Hadush Sibhat[1], Meley M Rannestad[2] [1]*University College Cork, Cork, Ireland.* [2]*Norwegian University of Life Sciences, Ås, Norway*	**Session 30** MW 160 Matthew Hipsey **14:00 - 14:20 [O30.1]** **Using a DEB model to study the effects of seabed mining on endemic species from Atlantic deep-sea hydrothermal vents** Irene Martins[1], Alexandra Guerra[1], Ana Azevedo[1], Candido Xavier[1], Marlene Pinheiro[1], Miguel M. Santos[1], Ana Colaço[2], Pedro Duarte[3] [1]*CIIMAR, University of Porto, Portugal.* [2]*Okeanos, University of the Azores, Portugal.* [3]*Norwegian Polar Institute, Norway*	**Session 31** MW 170 Aisha Javed **14:00 - 14:20 [O31.1]** **Movers and shakers: animal-vectored nutrient flows across resource gradients influence local and meta-ecosystem functioning** Matteo Rizzuto[1], Shawn J. Leroux[2], Oswald J. Schmitz[1], Eric Vander Wal[2], Yolanda F. Wiersma[2], Travis R. Heckford[3] [1]*Yale University, New Haven, CT, USA.* [2]*Memorial University of Newfoundland, St John's, NL, Canada.* [3]*Cariboo Natural Resource*	**Session 32** MW120 Carlos Alberto Arnillas **14:00 - 14:20 [O32.1]** **A diagnostic of misconceptions - using complex systems theory for a new socio-ecological forestry model** Katharina Linne, Pierre Ibisch *HNE - University for Sustainable Development Eberswalde, Germany* **14:20 - 14:40 [O32.2]**

14:20 - 14:40 [O29.2]
The value of monitoring information for water quality management
Amelie Luhede[1,2], Houda Yaqine[1], Reza Bahmanbijari[1,2], Michael Römer[1], Thorsten Upmann[2,1]
[1]*Bielefeld University, Bielefeld, Germany.* [2]*University of Oldenburg, Oldenburg, Germany*

14:40 - 15:00 [O29.3]
Performance of green roof layers made with recycled and artificial materials under weather conditions of Liège city
Mostafa Kazemi, Luc Courard, Shady Attia
University of Liège, Belgium

15:00 - 15:20 [O29.4]
Simulation of vegetation spread at large temporal and spatial scale
Deborah Zani[1,2], Veiko Lehsten[1,2], Heike Lischke[2]
[1]*Lund University, Lund, Sweden.* [2]*Swiss Federal Institute for Forest Snow and Landscape Research WSL, Birmensdorf, Switzerland*

15:20 - 15:40 [O29.5]
Applying HMMs to fine-scale acoustic telemetry
Jelger Elings[1], Stijn Bruneel[1], Rachel Mawer[1], Ine Pauwels[2], Matthias Schneider[3], Ianina Kopecki[3], Peter Goethals[1]
[1]*Ghent University, Gent, Belgium.* [2]*Research Institute for Nature and Forest, Brussels, Belgium.* [3]*SJE Ecohydraulics, Germany*

14:20 - 14:40 [O30.2]
Beginner-friendly climate-ecosystem modelling at home: the NorESM Land Sites Platform
Lasse T. Keetz[1], Eva Lieungh[2], Kaveh Karimi-Asli[1], Sonya R. Geange[3], Emiliano Gelati[1], Hui Tang[1,2,4], Yeliz A. Yilmaz[1], Kjetil S. Aas[1,5], Inge H.J. Althuizen[6], Anders Bryn[2,7]
[1]*University of Oslo, Oslo, Norway.* [2]*Natural History Museum, Oslo, Norway.* [3]*University of Bergen, Bergen, Norway.* [4]*University of Helsinki, Finland.* [5]*Center for International Climate Research, Oslo, Norway.* [6]*Bjerknes Centre for Climate Research, Norway.* [7]*University of Oslo, Norway*

14:40 - 15:00 [O30.3]
A coupled social-climate model linking rumor propagation and climate change
Athira Satheesh Kumar[1,2], Chris Bauch[1], Madhur Anand[2]
[1]*University of Waterloo, Waterloo, ON, Canada.* [2]*University of Guelph, Guelph, ON, Canada*

15:00 - 15:20 [O30.4]
A coupled socio-climate model with country-level structure
Amrita Punnavajhala[1], Chris Bauch[1], Madhur Anand[2]
[1]*University of Waterloo, Waterloo, ON, Canada.* [2]*University of Guelph, Guelph, ON, Canada*

15:20 - 15:40 [O30.5]
The role of multiple basal food sources in a competitive multi-phenotype predator-prey
Anna McAllister, Mark McCartney, David Glass
Ulster University, UK

Region, British Columbia Ministry of Forests, Canada

14:20 - 14:40 [O31.2]
Complementary field and modelling experiments: climate warming and alpine vegetation
Eva Lieungh[1], Rosie Fisher[2], Sonya Geange[3,4], Ragnhild Gya[3,4], Lasse T. Keetz[1], Siri Lie Olsen[5,6], Olav Skarpaas[7], Hui Tang[8], Joachim Töpper[9], Yeliz Yilmaz[1]
[1]*University of Oslo, Oslo, Norway.* [2]*CICERO Centre for International Climate Research, Norway.* [3]*University of Bergen, Bergen, Norway.* [4]*Bjerknes Centre for Climate Research, Bergen, Norway.* [5]*Norwegian University of Life Sciences, Ås, Norway.* [6]*Norwegian Institute for Nature Research, Oslo, Norway.* [7]*University of Oslo, Norway.* [8]*Finnish Meteorological Institute, HELSINKI, Finland.* [9]*Norwegian Institute for Nature Research, Norway*

14:40 - 15:00 [O31.3]
Black spruce post-fire regeneration modelling using remote sensed data
Francois Girard, Elainie Voyer-Leblanc
University of Montreal, Montréal, QC, Canada

15:00 - 15:20 [O31.4]
Community patterning between birds and vegetation relying on the forest practices using artificial neural network
Chang Hee Park[1], Jeonggyun Suh[2], Mihyeon Kim[1], Hyo Gyeom Kim[3], Sungwon Hong[1]
[1]*Kyungpook National University, Republic of Korea.* [2]*Duroo Environmental Ecology Research Institute, Republic of Korea.* [3]*University of Adelaide, Australia*

15:20 - 15:40 [O31.5]
Using mechanistic models to assess temporary closure management strategies of octopus fisheries
Sophie Wulfing, Easton White, Ahilya Sudarshan Kadba
University of New Hampshire, USA

Qualitative modelling of socio-ecological systems: navigating vulnerability in a multi-sectoral decision-making arena
Tatiana Merino-Benítez, Ileana Grave, Luis A. Bojórquez-Tapia
Laboratorio Nacional de Ciencias de la Sostenibilidad, Instituto de Ecología, UNAM, Mexico

14:40 - 15:00 [O32.3]
Modeling the adaptive cycle: A case study of Samothraki, Greece
Graham Hyde[1], Brian Fath[1,2,3]
[1]*Towson University, Towson, MD, USA.* [2]*International Institute for Applied Systems Analysis, Austria.* [3]*Masaryk University, Brno, Czech Republic*

15:00 - 15:20 [O32.4]
An individual based model applied to Eurasian beaver (*Castor fiber*) populations and beaver dam dispersal
Nam Jung[1], KyoungEun Lee[2], Jae Woo Lee[3], Baek-Jun Kim[2], Tae-Soo Chon[4,5]
[1]*National Institute of Ecology, Republic of Korea.* [2]*National Institute of Ecology, Seocheon-gun, Republic of Korea.* [3]*Dept. of Physics, Inha University, Republic of Korea.* [4]*Ecology and Future Research Institute, Republic of Korea.* [5]*Research Institute of Computer, Information and Communication, Pusan National Univ, Republic of Korea*

15:20 - 15:40 [O32.5]
Alternative resource use strategies and resilience of extensive livestock systems in arid environments to climate change
Diego J. Soler-Navarro[1,2], Alicia Tenza Peral[1,2], Marco A. Janssen[3], Andrés Giménez Casalduero[4], Irene Pérez Ibarra[1,2]
[1]*University of Zaragoza, Spain.* [2]*AgriFood Institute of Aragón (IA2), Spain.* [3]*Arizona State University, USA.* [4]*Miguel Hernández University, Spain*

15:40 - 16:10	**Refreshment Break** Highland Hall Event Center			
16:10 - 17:30	**Session 33** AC 223 Alex Neumann **16:10 - 16:30 [O33.1]** **The quality of life and perceived human-wildlife conflicts among forest communities around the Mountain Gorilla's Virunga Landscape in Africa** Edwin Sabuhoro[1], Ian Munanura[2], Jim Ayorekire[3] *[1]Penn State University, USA. [2]Oregon State University, USA. [3]Makerere University, Uganda* **16:30 - 16:50 [O33.2]** **Socio-ecological trade-offs in ecosystem services in the Himalayas** Kishor Aryal[1,2], Tek Maraseni[1,3], Armando Apan[1,4] *[1]University of Southern Queensland, Australia. [2]Ministry of Forests and Environment, Nepal. [3]Chinese Academy of Sciences, China. [4]University of the Philippines Diliman, The Philippines* **16:50 - 17:10 [O33.3]** **Leveraging anonymized smartphone GPS data to quantify drivers of human activity within and across urban parks** Garland Xie[1], Alessandro Filazzola[2,3], Scott MacIvor[1] *[1]University of Toronto, Canada. [2]Apex Resource Management Solutions, Canada. [3]Western University, Canada* **17:10 - 17:30 [O33.4]** **Life cycle models for evaluating the effectiveness of dam passage measures for achieving recovery of threatened Chinook salmon populations in the Upper Willamette River, Oregon**	**Session 34** MW 160 Reza Valipour **16:10 - 16:30 [O34.1]** **DACCS: New platform for climatic data analysis and its applications in ecological research** Zihaohan Sang, Steve Easterbrook *University of Toronto, Toronto, ON, Canada* **16:30 - 16:50 [O34.2]** **Considerations for data collecting and parameterizing processes-based models from long term field studies** Todd Swannack, Candice Piercy, Emily Russ, Carra Carrillo *US Army Engineer Research and Development Center, Vicksburg, MS, USA* **16:50 - 17:10 [O34.3]** **Exploitation, fast and low: modelling contagious cooperation in socio-ecological systems** Antonio Lopolito[1], Rocco Caferra[2], Piergiuseppe Morone[2] *[1]University of Foggia, Italy. [2]Unitelma Sapienza University of Rome, Italy* **17:10 - 17:30 [O34.4]** **Integrated hydrological and nutrient modelling of the Swan-Canning catchment-estuary system** Matthew Hipsey, Daniel Paraska, Sherry Zhai, Carolyn Oldham, Peisheng Huang, Hoang Vuong Dang *The University of Western Australia, Perth, Australia*	16:10 - 17:10 **Session 35** MW 170 Michelle Marraffini **16:10 - 16:30 [O35.1]** **Shifts in invertebrate communities in streams in relation to changes in stressors within the oil sands surface mining area** Nancy Glozier, Allison Ritcey *Environment and Climate Change Canada, Saskatoon, SK, Canada* **16:30 - 16:50 [O35.2]** **Riverine and reservoir hydraulic and water quality modeling for ecological impact assessment** Zhonglong Zhang[1], Todd Steissberg[2], Billy Johnson[3] *[1]Portland State University, USA. [2]U.S. Army Corps of Engineers Environmental Laboratory, Portland, OR, USA. [3]LimnoTech, USA* **16:50 - 17:10 [O35.3]** **Modelling community interactions and growth kinetics in microalgal mono- and co-cultures for bioremediation of swine wastewater** María Fernanda Palafox-Sola[1], Carlos Yebra-Montes[2], Danielle A. Orozco-Nunnelly[3], Martín Esteban González-López[1], José Guillermo González-Valdez[1], Misael Sebastián Gradilla-Hernández[1] *[1]Tecnologico de Monterrey, Escuela de Ingenieria y Ciencias, Mexico. [2]ENES-León, Universidad Nacional Autónoma de México, Mexico. [3]Department of Biology, Valparaiso University, USA*	16:10 - 17:10 **Session 36** MW120 Carlos Alberto Arnillas **16:10 - 16:30 [O36.1]** **Integrating farmer decisions in annual land use change modelling to simulate future nitrate losses to water bodies** Bano Mehdi-Schulz, Claudine Egger, Edberto Lima, Veronika Gaube *University of Natural Resources and Life Sciences Vienna, Wien, Austria* **16:30 - 16:50 [O36.2]** **Modelling the fine-scale habitat preference of upstream migrating freshwater fish** Rachel Mawer[1,2], James Campbell[3], Stijn Bruneel[1], Ine Pauwels[4], Ianina Kopecki[2], Matthias Schneider[2], Jelger Elings[1], Johan Coeck[4], Peter Goethals[1] *[1]Ghent University, Gent, Belgium. [2]SJE Ecohydraulic Engineering, Germany. [3]Leibniz-Institute of Freshwater Ecology and Inland Fisheries in the Forschungsverbund Berlin eV, Berlin, Germany. [4]Research Institute for Nature and Forest, Brussels, Belgium* **16:50 - 17:10 [O36.3]** **Modelling and examining water quality effects of riparian buffers in the Modeste watershed of the North Saskatchewan River in Alberta** Yongbo Liu[1,2], Wanhong Yang[2], Hui Shao[3] *[1]Environment and Climate Change Canada, Burlington, ON, Canada. [2]University of Guelph, Guelph, ON, Canada. [3]ESRI Research and Development Center, Ottawa, ON, Canada*

	Tom Porteus, Roberto Licandeo, Mairin Deith, Eric Parkinson, Murdoch McAllister *The University of British Columbia, Vancouver, BC, Canada*			
17:30 - 18:00	**Poster Awards and Conference Closing Address** AC 223			
19:00 - 22:00	**Conference Dinner (ticketed event)** The Guild Inn Estate			

6th May 2023

09:00 - 18:00 **Field Trip 1- Niagara Falls Day Tour** Niagara Falls is home to one of the most stunning Natural wonders, however, there is so much more to see and experience in Niagara. This Toronto to Niagara Falls Day Tour will take you from the Falls to the stunning views of the Falls. You will then travel back in time to the picturesque town of Niagara-on-the-Lake. This quaint town still retains its 19th century charm from the Victorian era as well as its stunning architecture. Price: US$159 per person The price includes: return bus transportation from the official conference hotels, Voyage to the Falls boat tour, free time for self-exploration, unlimited free bottled water, Niagara-on-the Lake tour. Lunch is NOT included.	**11:00 - 16:00** **Field Trip 2- Brunch Cruise in Toronto Harbour** The Signature Brunch Cruise in Toronto Harbour aboard the Northern Spirit is an unforgettable way to experience the city from the water. Spend your afternoon on Toronto Harbour with a market fresh buffet, picturesque views and the sights and sounds of the city's waterfront. While onboard, you'll enjoy our chef-prepared brunch buffet, a fully stocked bar, and incredible views of Toronto's iconic skyline, famous landmarks, and historic waterways from our interior and open-air rooftop/outdoor decks. Price: US$75 per person The price includes: return bus transportation from the official conference hotels; 2-hour cruise aboard the Northern Spirit sailing along Toronto's harbour, islands, and waterfront; Delicious sweet and savory brunch with freshly prepared breakfast and lunch selections plus desserts; Coffee and hot tea; The best views of Toronto's iconic skyline and attractions, including the CN Tower, Rogers Centre, Queen's Quay Terminal, Harbourfront Centre, and HTO Park. Tickets can be purchased via the online registration system [https://conferences.elsevier.com/ISEM2023]