Oral Program

Sunday 8th May 2016

16:00-18:00	**Registration** **Room: Potomac Foyer**
18:00-19:30	**Welcome Drinks Reception** **Room: Potomac Lounge**

Monday 9th May 2016

07:30-08:30	**Refreshment break, kindly sponsored by Towson University** **Room: Potomac Lounge**
08:30-10:20	**Plenary Session 1** **Chair: Larry Li** **Room: Chesapeake 1, 2, & 3**
08:30-09:00	Welcome and introductions
09:00-09:40	**[PL01]** **The community surface dynamics modeling system** J.P.M. Syvitski, *University of Colorado, USA*
09:40-10:20	**[PL02]** **Trade-offs in sustainability assessment** V. Dale*, K.L. Kline, E.S. Parish, *Oak Ridge National Laboratory, USA*
10:20-10:50	**Refreshment break** **Room: Potomac Lounge**

10:50-12:30	**Ecological modelling and environmental management ISEM 2016 symposium** **Room: Chesapeake 1** **Chair: L. Harris**	**Dynamic Ecological Simulation Models** **Room: Chesapeake 2** **Chair: K. Rose**	**Dynamic energy budgets - relating individual to ecological processes** **Room: Chesapeake 3** **Chair: T. Klanjscek**	**Biodiversity and Conservation Modelling** **Room: Loch Raven** **Chair: Z. Li**	**Symposium on the AQUATOX ecotoxicologic risk assessment model** **Room: UU 305** **Chair: D. Blancher**
10:50-11:10	**[O1.01]** **Calculation of maximum allowable inputs and country wise nutrient load reduction targets for the HELCOM Baltic Sea action plan revision 2013** B.G. Gustafsson *Stockholm University, Sweden*	**[O2.01]** **Simulating individual-based movement in dynamic environments** K.S. Watkins*[1], K.A. Rose[2] *[1]Dynamic Solutions, LLC, USA,* *[2]Louisiana State University, USA*	**[O3.01]** **The structure of DEB theory** T. Domingos*, T. Sousa *Instituto Superior Técnico, MARETEC/DEM, Portugal*	**[O4.01]** **Modeling the dispersing routes of giant pandas on the southern slope of the Qinling Mountains, China** X. Liu*[1,2], L. Liu1[2], L. Liu2[2], X. Jin[3] *[1]State Key Joint Laboratory of Environment Simulation and Pollution Control, China,* *[2]Tsinghua University, China,* *[3]Shaanxi Wild Animal Rescue and Research Center, China*	**[O5.01]** **The history and generality of AQUATOX, a robust mechanistic model** R. Park[1], J. Clough[2], B. Rashleigh*[3], D. Mauriello[1] *[1]Eco Modeling, USA, [2]Warren Pinnacle Consulting, Inc., USA,* *[3]U.S. Environmental Protection Agency, USA, [4]U.S. EPA (retired), USA*

11:10-11:30	[O1.02] **Phytoplankton dynamics and Chl-a modelling of the Nakdong River, Korea** D. Seo*, S. Bae *Chungnam National University, Republic of Korea*	[O2.02] **A 3d agent based model of orca echolocation success under different ambient noise environments** S. Myers *Mosaic Modeling Group, USA*	[O3.02] **Toward a database of DEB parameters for animal species: Improvements in the add-my-pet procedure and a new multispecies estimation procedure** G.M. Marques*[1], S. Augustine[2], D. Lika[3], T. Domingos[1], S.A.L.M. Kooijman[4], L. Pecquerie[5] *[1]Instituto Superior Técnico, Portugal, [2]Akvaplan-niva, Norway, [3]University of Crete, Greece, [4]Vrije Universiteit, The Netherlands, [5]Institut de Recherche pour le Développement, France*	[O4.02] **Modeling the effects of spatially heterogeneous human disturbance on tiger population dynamics inside protected areas** N.H. Carter*[1], S. Levin[2], V. Grimm[3] *[1]Boise State University, USA, [2]Princeton University, USA, [3]Helmholtz Center for Environmental Research, Germany*	[O5.02] **Development of an AQUATOX ecosystem model for assessing effects of an herbicide on aquatic food webs in Europe** R.A. Pastorok*[1], D.V. Preziosi[1], D.A. Rudnick[1], Y. Bramley[2], E. Farrelly[2], D. Huggett[2], P. Thorbek[2] *[1]Integral Consulting Inc, USA, [2]Syngenta Ltd, UK*
11:30-11:50	[O1.03] **Participatory pollutant load modeling for Chesapeake Bay management** G. Shenk*[1], G. Bhatt[3], G. Yactayo[4], L. Linker[2] *[1]USGS, USA, [2]EPA, USA, [3]Penn State University, USA, [4]UMCES, USA*	[O2.03] **An agent-based model of manatee bioenergetics and warm water refuge usage in the Indian river lagoon** S. Myers *Mosaic Modeling Group, USA*	[O3.03] **Linking metabolism to life history in birds through Dynamic Energy Budget (DEB) theory** C. Teixeira*[1], T. Sousa[1], T. Domingos[1], S. Kooijman[2] *[1]Universidade de Lisboa, Portugal, [2]Vrije Universiteit Amsterdam, The Netherlands*	[O4.03] **Approximate Bayesian Computation for pattern-oriented individual-based model: A case study for ecological applications with Black Petrels (*Procellaria parkinsoni*)** J. Zhang*[1], T.E. Dennis[1], T.J. Landers[2], G.L.W. Perry[1] *[1]University of Auckland, New Zealand, [2]Auckland Council, New Zealand*	[O5.03] **Applying AQUATOX to assess pesticide effects in a European stream scenario** D.V. Preziosi*[1], R. Pastorok[1], P. Thorbek[2], Y. Bramley[2], E. Farrelly[2], D. Huggett[2] *[1]Integral Consulting Inc., USA, [2]Syngenta, UK*
11:50-12:10	[O1.04] **Modeling water quality impacts of changing nutrient loads in the Chesapeake Bay over the past century** M.A.M. Friedrichs*[1], D.E. Kaufman[1], R.G. Najjar[2], H. Tian[3], Y. Yao[3], B. Zhang[3] *[1]College of William & Mary, USA, [2]Pennsylvania State University, USA, [3]Auburn University, USA*	[O2.04] **An individual-based, eco-evolutionary simulation model in riverscape genetics to simulate management strategies of native and non-native trout** C.C. Day*[1,2], E.L. Landguth[2], A. Bearlin[3] *[1]Purdue University, USA, [2]University of Montana, USA, [3]Seattle City Light, USA*	[O3.04] **Unifying resource uptake functions** J. van der Meer[1,2] *[1]Royal NIOZ, The Netherlands, [2]VU University Amsterdam, The Netherlands*	[O4.04] **Linking existing field data with agent-based model development to support conservation decision making for western burrowing owls** S. McCullough Hennessy*[1], J.M. Eadie[2], M.L. Miller[2], R.R. Swaisgood[3], D.H. Deutschman[1] *[1]San Diego State University, USA, [2]University of California,*	[O5.04] **Using AQUATOX to establish nearshore marine baselines for natural resource damage assessment of the Deepwater Horizon oil release** R.A. Park[1], E.C. Blancher*[2], J. Clough[3], S. Milroy[4], M. Graham[4], C. Rakocinski[4], J. Wiggert[4], R. Leaf[4], M. Beiser[5], R. Harrell[5]

			USA, [3]San Diego Zoo Global Institute for Conservation Research, USA	*[1]Eco Modeling, Diamondhead, USA, [2]Sustainable Ecosystem Restoration, LLC, Mobile AL, USA, [3]Warren Pinnacle Consulting, USA, [4]University of Southern Mississippi, USA, [5]Mississippi Department of Environmental Quality, USA*
12:10-12:30	**[O1.05]** **Land-Use/ Land-Cover (LULC) change modelling using medium to very high resolution satellite remote sensing data to evaluate natural and human induced impacts on estuarine wetland ecosystems of Grand Bay National Estuarine Research Reserve (NERR) of Mississippi, USA** R.W. Kulawardhana*[1], T.T. Harris[1], E.M. Gulledge[1], R.A. Feagin[2], P.B. Tchounwou[1] *[1]Jackson State University, USA, [2]Texas A&M, USA*	**[O2.05]** **Evaluating foraging theories with a spatially-explicit individual-based model** S.E. Sable*[1], K.A. Rose[2] *[1]Dynamic Solutions, LLC, USA, [2]Louisiana State University, USA*		**[O4.05]** **Prospective modelling of the relationship between bumblebees, land use and climate, for Europe and BENELUX** L. Marshall*[1,2], J.C. Biesmeijer[2] [,3], P. Rasmont[4], N. Dendoncker[1] *[1]Université de Namur, Belgium, [2]Naturalis Biodiversity Center, The Netherlands, [3]University of Amsterdam, The Netherlands, [4]Université de Mons, Belgium*	**[O5.05]** **Using AQUATOX to determine nearshore marine injuries for natural resource damage assessment of the Deepwater Horizon oil release** J. Clough*[1], E.C. Blancher[2], R.A. Park[3], S. Milroy[4], M. Graham[4], C. Rakocinski[4], R. Hendon[4], R. Leaf[4], M. Wyatt[5], M. Beiser[5] *[1]Warren Pinnacle Consulting, USA, [2]Sustainable Ecosystem Restoration, LLC, Mobile, USA, [3]Eco Modeling, Diamondhead, USA, [4]University of Southern Mississippi, USA, [5]Mississippi Department of Environmental Quality, USA*
12:30-14:00	**Lunch & Poster Session 1** **Room: Potomac Lounge**				
14:00-15:20	**Ecological modelling and environmental management ISEM 2016 symposium (ctd.)** **Room: Chesapeake 1** **Chair: L. De Mutsert**	**Dynamic Ecological Simulation Models (ctd.)** **Room: Chesapeake 2** **Chair: V. Dale**	**Dynamic energy budgets - relating individual to ecological processes (ctd.)** **Room: Chesapeake 3** **Chair: C.M. Teixeira**	**Biodiversity and Conservation Modelling (ctd.)** **Room: Loch Raven** **Chair: V. Grimm**	**Machine learning in ecological modelling** **Room: UU 305** **Chair: S. Lek**
14:00-14:20		**[O2.06]** **Steady state versus unfolding of full model dynamics** S.A. Pietsch[1] *[1]IIASA, Austria, [2]BOKU, Austria*	**[O3.06]** **Predicting potential growth of oysters in the Barataria Bay (Louisiana, USA) through a DEB model using outputs from a hydrodynamic model under scenarios of climate change and river management**	**[O4.06]** **A mechanistic understanding of how intraspecific trait variation promotes biodiversity** M. Crawford*[1], F. May[3], K. Koerner[1], F. Jeltsch[1], V. Grimm[2] *[1]Universität Potsdam, Germany, [2]Helmholtz Zentrum*	**[O5.06]** **Prediction of macroinvertebrate richness and diversity in a tropical river** R. Sor*, P. Goethals, S. Lek, *Université de Toulouse – UPS3, France*

		R. Lavaud*[1], M. La Peyre[1,2], D. Justic[3], L. Wang[3], C. Bacher[4], J. La Peyre[1] [1]*Louisiana State University Agricultural Center, USA,* [2]*USGS, USA,* [3]*Louisiana State University, USA,* [4]*Ifremer, USA*	*für Umweltforschung -- UFZ, Germany,* [3]*German Centre for Integrative Biodiversity Research (iDiv), Germany*	
14:20-14:40	**[O1.07]** **Algae flow-through experiments and population modelling as supportive approach in higher-tier aquatic risk assessments of pesticides - results of case studies** D. Weber*[1], G. Weyman[2], D. Schaefer[3] [1]*Eurofins Regulatory AG, Switzerland,* [2]*ADAMA Agricultural Solutions UK Ltd., UK,* [3]*Bayer CropScience AG, Germany*	**[O2.07]** **Emerging auto-oscillations in a non-linear dynamical model of multiple feedbacks in soil** N.A. Vasilyeva*[1,3], A.A. Vladimirov[2], J.G. Ingtem[1], D.A. Silaev[1] [1]*Lomonosov Moscow State University, Russia,* [2]*Joint Institute for Nuclear Research, Russia,* [3]*Dokuchaev Soil Science Institute, Russia*	**[O3.07]** **Modelling the density effects of farmed oyster stocks (*Crassostrea gigas*) on growth performances in the bay of Bourgneuf (France) using a 3D ecosystem model** P. Cugier*[1], Y. Thomas[2], C. Bacher[1] [1]*Ifremer (French Research Institute for Exploitation of the Sea), France,* [2]*University of Brest, France*	**[O4.07]** **Using a virtual ecology framework to assess the reliability of landscape connectivity metrics** C.E. Simpkins*, T.E. Dennis, T.R. Etherington, G.L.W. Perry *University of Auckland, New Zealand*	**[O5.07]** **Evaluation of relative importance of variables in clustering of a self-organizing map** Y-S. Park *Kyung Hee University, Republic of Korea*
14:40-15:00	**[O1.08]** **Predicting the cumulative effects of multiple, simultaneous stressors using the Chesapeake Atlantis model** T.F. Ihde *ERT, Inc. for NOAA Chesapeake Bay Office, USA*	**[O2.08]** **Agroforestry as climate change adaptation strategy: A system identification input-output modeling approach** C.R. Elevitch*[1], C.R. Johnson[1], W.A. Sethares[2] [1]*Cornell University, USA,* [2]*University of Wisconsin-Madison, USA*	**[O3.08]** **Global change underpins Pacific oyster invasion in Europe: A bioenergetics modelling approach** Y. Thomas*[1,2], S. Pouvreau[3], M. Alunno-Bruscia[3], L. Barillé[1], F. Gohin[3], P. Bryère[4], P. Gernez[1] [1]*Université de Nantes, France,* [2]*Université de Bretagne Occidentale, France,* [3]*Ifremer, France,* [4]*ACRI-HE, France*	**[O4.08]** **Quantum & classical mechanics of the vegetative complex health index** K.J. Sabaj-Stahl, D.A. Sabaj-Stahl* *The Edwin James Society, USA*	**[O5.08]** **Computational methods for behavior modelling to monitor environmental stress** T-S. Chon[1,2] [1]*Pusan National University, Republic of Korea,* [2]*Ecology and Future Research Association, Republic of Korea*
15:00-15:20	**[O1.09]** **A spatial fish and shellfish model used in delta management decisions** K. de Mutsert*[1], K. Lewis[1], J. Buszowski[2], J. Steenbeek[2], S. Milroy[3] [1]*George Mason University,*		**[O3.09]** **The role of bivalves in the Balgzand: First steps on an integrated modelling approach** S. Saraiva*[1], L. Fernandes[2], J. van der Meer[3], R. Neves[4], S.A.L.M. Kooijman[5]	**[O4.09]** **Effective seed harvesting strategies for the *ex situ* genetic diversity conservation of rare tropical tree populations** Y.K. Kashimshetty*, S.P. Pelikan, S.R. Rogstad	**[O5.09]** **Overview of the use of machine learning in ecological and environmental modelling** S. Lek*[1], Y. Park[2], T-S. Chon[3] [1]*Université de Toulouse, France,* [2]*Kyung Hee University,*

	USA, [2]Ecopath International Initiative, Spain, [3]University of Southern Mississippi, USA		*[1]SMHI / Swedish Meteorological and Hydrological Institute, Sweden, [2]Action Modulers, Environment and Energy Section, Portugal, [3]NIOZ Royal Netherlands Institute for Sea Research, The Netherlands, [4]Instituto Superior Técnico, Portugal, [5]Vrije Universiteit, The Netherlands*	*University of Cincinnati, USA*	*Republic of Korea, [3]Pusan University, Republic of Korea*
15:20-15:50	**Refreshment break** **Room: Potomac Lounge**				
15:50-17:30	**Ecological modelling and environmental management ISEM 2016 symposium (ctd.)** **Room: Chesapeake 1** **Chair: J. Testa**	**Dynamic Ecological Simulation Models (ctd.)** **Room: Chesapeake 2** **Chair: T. Swannack**	**Dynamic energy budgets - relating individual to ecological processes (ctd.)** **Room: Chesapeake 3** **Chair: M. Vaugeois**	**Biodiversity and Conservation Modelling (ctd.)** **Room: Loch Raven** **Chair: J. Link**	**Symposium on SLAMM—the maturation of a landscape-ecologic model** **Room: UU 305** **Chair: J. Clough**
15:50-16:10	**[O1.10]** **Spatial modeling and evaluation of non-traditional red-cockaded woodpecker habitats** M. Mohan*, G.P. Catts *North Carolina State University, USA*	**[O2.10]** **The evolution of mutation rate in sexual populations during range expansion** M.M.P. Cobben*[1], A. Kubisch[2],[3] *[1]NIOO-KNAW, The Netherlands, [2]University of Hohenheim, Germany, [3]Université Montpellier II, France*	**[O3.10]** **Simulating system level effects of stress on aquatic systems through linked dynamic energy budget individual-based models (DEB-IBMs) in Netlogo** A.G. East*, C.J. Salice *Towson University, USA*	**[O4.10]** **Qualitative modelling of functional diversity in the marine benthos** N. Alexandridis*[1], C. Bacher[1], J.M. Dambacher[2], N. Desroy[1], O. Gauthier[3], F. Jean[3] *[1]Ifremer, France, [2]CSIRO, Australia, [3]LEMAR, France*	**[O5.10]** **Spanning SLAMM applications: An NGO perspective** P. Glick *National Wildlife Federation, USA*
16:10-16:30	**[O1.11]** **A multi-model approach to guiding bi-national nutrient loading targets for Lake Erie** D. Scavia*[1], J. DePinto[2], M. Auer[3], I. Bertani[1], S. Bocaniov[1], S. Chapra[4], L. Leon[5], C. McCrimmon[5], D. Obenour[6], R. Rucinski[2] *[1]University of Michigan, USA, [2]LimnoTech, USA, [3]Michigan Technological University, USA, [4]Tufts University, USA, [5]Environment Canada, Canada, [6]North Carolina State*	**[O2.11]** **The southward autumn migration of waterfowl facilitates global transmission of the highly pathogenic avian influenza H5N1 virus** Y. Xu*[1], P. Gong[1,2], B. Wielstra[3,4], Y. Si[1,2] *[1]Tsinghua University, China, [2]Joint Center for Global Change Studies, China, [3]University of Sheffield, UK, [4]Naturalis Biodiversity Center, The Netherlands*	**[O3.11]** **Incorporating the uncertainties of feeding ecology into stock assessments of valuable fish species: The case of Pacific Bluefin Tuna** M. Jusup *Kyushu University, Japan*	**[O4.11]** **Edge effects on diatom community succession trajectory within a mitigation wetland** B.E. Hoge *University of Houston - Downtown, USA*	**[O5.11]** **SLAMM-View expedited the interest inand use of SLAMM** B.O. Wilen*, J.L. Ehman *U.S. Fish and Wildlife Service, USA*

	University, USA, [7]NOAA, USA			
16:30-16:50	**[O1.12]** **A multi-model approach to guiding agricultural nutrient load reductions for Lake Erie** M. Kalcic[1], R.L. Muenich[1], D. Scavia[1], N. Aloysius[2], J. Arnold[7], J. Atwood[7], C. Boles[3], R. Confesor[4], J. DePinto[3], J.F. Martin*[2] *[1]University of Michigan, USA, [2]Ohio State University, USA, [3]LimnoTech, USA, [4]Heidelberg University, USA, [5]The Nature Conservancy, USA, [6]USGS, USA, [7]USDA-ARS, USA*	**[O2.12]** **A spatially-explicit modelling platform for modelling mosquito populations in semi-arid environments using the RNetLogo Package** D.E. Dawson[1], C.J. Salice*[1] *[1]Texas Tech University, USA, [2]Towson University, USA*	**[O3.12]** **Effect of climate change on population growth rate: Some insight using DEB models of 2 benthic species** C. Bacher *Ifremer, France*	**[O4.12]** **Studying the growth dynamics of a marine invasive kelp species *Undaria pinnatifida*** J.T. Murphy*[1,2], M.P. Johnson[2], F. Viard[1] *[1]Station Biologique de Roscoff (CNRS-UPMC), France, [2]National University of Ireland, Ireland*	**[O5.12]** **Neutral models as a way to evaluate the Sea Level Affecting Marshes Model (SLAMM)** W. Wu*[1], K.M. Yeager[2], M.S. Peterson[1], R.S. Fulford[3] *[1]The University of Southern Mississippi, USA, [2]University of Kentucky, USA, [3]EPA Gulf Ecology Division, USA*
16:50-17:10	**[O1.13]** **Biogeographic assessments: A framework for modeling and information synthesis in marine resource management** M.E. Monaco* J.D. Christensen, *National Oceanic and Atmospheric Administration, USA*	**[O2.13]** **Models of outbreaks and phase polyphenism in desert locust population** V.V. Akimenko*[1], C. Piou[2,3] *[1]T.Shevchenko National University of Kyiv, Ukraine, [2]CIRAD, UMR CBGP, France, [3]National Anti-locust Center of Aït Melloul, Morocco*	**[O3.13]** **Regional environment explains variability in biological traits of anchovy populations along a European latitudinal gradient: Analysis with two bioenergetics models** M. Huret*[1], K. Tsiaras[2], U. Daewel[3], M. Skogen[4], P. Gatti[1], P. Petitgas[1], S. Somarakis[1] *[1]IFREMER,*	**[O4.13]** **Improving the integrity of ecosystem-based models with biochemical tracer data** H.R. Pethybridge*, E.A. Fulton *CSIRO, Australia*	**[O5.13]** **Should you SLAMM your marsh? A look at the sea level affecting marshes model at Los Peñasquitos Lagoon in San Diego, CA** L. Sheehan *ESA, USA*
17:10-17:30	**[O1.14]** **Management informed development of the Delmarva modeling suite** L. Harris*[1], M. Brush[2], J. York[3] *[1]UMCES-CBL, USA, [2]VIMS, USA, [3]University of Delaware, USA*	**[O2.14]** **A stochastic movement model describes conditional philopatry and long-distance dispersal in a population of Fowler's toads (*Anaxyrus fowleri*)** P. Marchand*[1], M. Boenke[2], D.M. Green[2] *[1]National Socio-Environmental Synthesis Center, USA, [2]McGill University, Canada*	**[O3.14]** **From individual nutrition to bear population** C. Lopez-Alfaro*[1], S.E. Nielsen[1] *[1]University of Alberta, Canada, [2]University of Chile, Chile*	**[O4.14]** **Ecological modelling for nature protection** T. Legovic *R. Boskovic Institute, Croatia*	**[O5.14]** **Latest analyses from and future directions for the Sea Level Affecting Marshes Model (SLAMM)** J.S. Clough*, A.L. Polaczyk, M. Propato *Warren Pinnacle Consulting, Inc., USA*

Tuesday 10th May 2016

09:00-10:20	**Plenary Session 2** **Chair: Santanu Ray** **Room: Chesapeake 1, 2, & 3**
09:00-09:40	**[PL03]** **Spatiotemporal and genetic dynamics of the avian influenza viruses** B. Xu, *Tsinghua University, China*
09:40-10:20	**[PL04]** **The social aspects of ecological modeling or what they did not teach you in school** K.A. Rose, *Louisiana State University, USA*
10:20-10:50	**Refreshment break** **Room: Potomac Lounge**

10:50-12:30	**Ecological modelling and environmental management ISEM 2016 symposium (ctd.)** **Room: Chesapeake 1** **Chair: G. Shenk**	**Dynamic Ecological Simulation Models (ctd.)** **Room: Chesapeake 2** **Chair: S. Pietsch**	**Dynamic energy budgets - relating individual to ecological processes (ctd.)** **Room: Chesapeake 3** **Chair: M. Jusup**	**Modelling Coupled Natural and Social Systems** **Room: Loch Raven** **Chair: T. Legovic**	**Modeling of ecosystem services for improved decision making** **Room: UU 305** **Chair: J. Johnston**
10:50-11:10	**[O1.15]** **Modeling and evaluating the global water resources flow in ecosystems and ecological human imprint (E[HI]): Impacts and assessments** S. Shakir Hanna*[1], I. Osborne-Lee[1], R. Misso[3], C. Gian Paolo[2], M. Khalil[4] *[1]Prairie View A&M University, USA, [2]Simone Cesaretti Foundation, Italy, [3]University of Naples "Parthenope", Italy, [4]Ain Shams University, Egypt*	**[O2.15]** **Dynamic monitoring of Poyang Lake basin by integrating Landsat and MODIS observations** B. Chen*[1], L. Chen[1], B. Xu[1,2] *[1]Beijing Normal University, China, [2]Tsinghua University, China, [3]University of Utah, USA*	**[O3.15]** **Modelling impacts of stressors in a warming world: From metabolism to ecosystem processing** N. Galic*, V.E. Forbes *University of Minnesota Twin Cities, USA*		**[O5.15]** **Projecting the effects of biocontrol on *Melaleuca quinquenervia* dynamics in sourthern Florida using individual-based modeling** B. Zhang*[1], D.L. DeAngelis[2], M.B. Rayamajhi[3] *[1]University of Miami, USA, [2]U.S. Geological Survey, USA, [3]U.S. Department of Agriculture, USA*
11:10-11:30	**[O1.16]** **Bridging the gap between climate science and regional-scale biodiversity conservation in south-eastern Australia** M.J. Drielsma*[1,2], J. Love[1,2], G. Manion[2], K.J. Williams[3], H. Saremi[2], T. Harwood[3] *[1]Office of Environment and Heritage NSW, Australia,*	**[O2.16]** **Information-based network analysis for virtual water networks in China** D. Fang*, B. Chen *Beijing Normal University, China*	**[O3.16]** **A model-based method to analyze ecotoxicology experiments in mesocosm** C. Leloutre[1], A.R.R. Péry[2], R. Beaudouin*[1] *[1]INERIS, France, [2]INRA-AgroParisTech, France*	**[O4.16]** **On reproduction, production and sustainability in modelling of a peasant economy: What can GEORGESCU-ROEGEN tell us today** E.A. Nuppenau *Justus-Liebig-University-Giessen, Germany*	**[O5.16]** **Farm size effect in modelling carbon footprint of organic farming systems - case study of two farms in Washington State** C.A. Adewale*, L.A. Carpenter-Boggs, S. Higgins, D. Granatstein, C.O. Stöckle, B.R. Carlson *Washington State University,*

	[2]University of New England, Australia, [3]CSIRO Land and Water, Australia				USA
11:30-11:50	**[O1.17]** **Modelling stand and individual growth in mangroves, R***hizophora mucronata* **L** G.L. Ndegwa*[1,2], J.G. Kairo[1], N. Koedam[2] [1]*Kenya Marine and Fisheries Research Institute, Kenya,* [2]*Vrije Universiteit Brussel, Belgium*	**[O2.17]** **Irradiance and mixed layer depth are key drivers of phytoplankton dynamics in cyclonic and anticyclonic eddies off East Australia** L. Laiolo*[1,2], A. McInnes[1], R. Matear[2], M. Doblin[1] [1]*University of Technology Sydney (UTS), Australia,* [2]*CSIRO Marine and Atmospheric Research, Australia*	**[O3.17]** **Effects of hypoxia on metabolic functions in fish and bivalves within the context of Dynamic Energy Budget (DEB) theory: Observed patterns and modelling assumptions** Y. Thomas*[1], L. Pecquerie[2], D. Chabot[3], J. Flye-Sainte-Marie[1] [1]*Université de Bretagne Occidentale, France,* [2]*Institut de Recherche pour le Développement, France,* [3]*Maurice-Lamontagne Institute, Canada*	**[O4.17]** **Governing social-ecological systems - insights from a social-ecological network perspective** S.M. Alexander*[1,2], O. Bodin[1] [1]*National Socio-Environmental Synthesis Center, USA,* [2]*Stockholm Resilience Centre, Sweden*	**[O5.17]** **Holos - an exploratory ecosystem model for Canadian farms** R. Kröbel*, H.H. Janzen, S.M. Little, K.A. Beauchemin *Agriculture and Agri-Food Canada, Canada*
11:50-12:10	**[O1.18]** **A numerical model study of the impact of channel deepening on dissolved oxygen levels in the lower James River and the Elizabeth River** Y. Wang*, J. Shen, M. Sisson *Virginia Institute of Marine Science, USA*	**[O2.18]** **Informing an estuarine food web model with spatially-explicit and time-dynamic GIS data** K.A. Lewis*[1], K. de Mutsert[1], J. Steenbeek[2], H. Peele[3], J.H. Cowan, Jr.[4], J. Buszowski[2] [1]*George Mason University, USA,* [2]*Ecopath International Intiative, Spain,* [3]*Louisiana Geological Survey, USA,* [4]*Louisiana State University, USA*	**[O3.18]** **Bioenergetic models relating effects of food availability and silver nanoparticles on Daphnia individuals and populations** R.M. Nisbet*, L.M. Stevenson *University of California Santa Barbara, USA*	**[O4.18]** **Linking Bayesian and agent-based modeling techniques to simulate coupled human and natural systems: A case study with ranchers in Sonora, Mexico** A.J. Pope*, R. Gimblett *The University of Arizona, USA*	**[O5.18]** **EcoService Models Library, an online database of ecological production functions** R.J.F. Bruins*[1], T.H. DeWitt[1], M. Sheng[1], M. Errend[2], J.B. Moon[3], G. Lomnicky[4], J. Wilson[4] [1]*U.S Environmental Protection Agency, USA,* [2]*Hatfield Marine Science Center, USA,* [3]*University of Arkansas, USA,* [4]*Dynamac Corporation, USA*

12:10-12:30	[O1.19] **Evaluating impacts of nutrient reductions on oxygen concentrations in the Chesapeake Bay using both regulatory and academic water quality models** I.D. Irby*, M.A.M. Friedrichs *College of William & Mary, USA*	[O2.19] **Informing marine spatial planning with numerical modelling: A case-study on shellfish aquaculture in Malpeque Bay (Eastern Canada)** R. Filgueira[1], T. Guyondet*[1], C. Bacher[2], L.A. Comeau[1] *[1]Department of Fisheries and Oceans, Canada, [2]French Institute for Sea Research, France*	[O3.19] **Bioenergetic approach to modeling the impact of nano-CeO2 on soybean productivity** T. Klanjscek*[1,2], E.B. Muller[1], R.M. Nisbet[1] *[1]University of California Santa Barbara, USA, [2]Rudjer Bošković Institute, Croatia*	[O4.19] **Agent-based modelling for ecological economics: A case study of the Republic of Armenia** A.S. Akopov*[1], L.A. Beklaryan[1], A.K. Saghatelyan[1] *[1]National Research University Higher School of Economics, Russia, [2]Central Economics and Mathematics Institute of Russian Academy of Science, Russia, [3]Center for Ecological-Noosphere Studies of the National Academy of Sciences of RA, Armenia*	[O5.19] **The carbon balance of tropical managed forests** B. Hérault[1], C. Piponiot-Laroche*[2,3] *[1]Cirad, French Guiana, [2]Université de Guyane, French Guiana, [3]CNRS, French Guiana*
12:30-14:00	**Lunch & Poster Session 2** **Room: Potomac Lounge**				
14:00-15:20	**Species distribution modelling** **Room: Chesapeake 1** **Chair: P. Goethals**	**Dynamic Ecological Simulation Models (ctd.)** **Room: Chesapeake 2** **Chair: N. Vasilyeva**	**Environmental accounting using emergy modeling** **Room: Chesapeake 3** **Chair: G. Liu**	**Modelling Coupled Natural and Social Systems (ctd.)** **Room: Loch Raven** **Chair: S. Alexander**	**Modeling of ecosystem services for improved decision making (ctd.)** **Room: UU 305** **Chair: J. Johnston**
14:00-14:20	[O1.20] **Habitat-based density models for a marine top predator** A. Gilles*[1,2], S. Viquerat[1], E.A. Becker[2], K.A. Forney[2], S.C.V. Geelhoed[3], J. Haelters[4], J. Nabe-Nielsen[5], M. Scheidat[3], U. Siebert[1], S. Sveegaard[5] *[1]University of Veterinary Medicine Hannover Foundation, Germany, [2]National Oceanic and Atmospheric Administration, USA, [3]IMARES Wageningen Institute for Marine Resource & Ecosystem Studies, The Netherlands, [4]Royal Belgian Institute of Natural Sciences, Belgium, [5]Aarhus University, Denmark*	[O2.20] **Pattern-oriented modeling of Daphnia magna sensory-responses: Deriving bio-inspired, multi-sensor, autonomous, logic model algorithms** M.E. Kjelland*[1], T.M. Swannack[1,2], J. Laird[1], A. Kennedy[1], K.A. Gust[1] *[1]U.S. Army Engineer Research and Development Center, USA, [2]Texas State University, USA*	[O3.20] **Estimated impacts from the deepwater horizon oil release on high marsh systems in Mississippi: A systems modeling approach** M.T. Brown*, L. Zarba *University of Florida, USA*	[O4.20] **Index decomposition analysis of urban crop water footprint** X. Zhao*[1,2], M. Tillotson[2], Y. Liu[1] *[1]Beijing Forestry University, China, [2]University of Leeds, UK*	[O5.20] **A bioeconomic model of ecosystem pest-control services: Coffee berry borer and shade-grown coffee in Colombia** S.S. Atallah*[1], M.I. Gómez[2], J. Jaramillo[3] *[1]University of New Hampshire, USA, [2]Cornell University, USA, [3]Bayer CropScience, Germany*

14:20-14:40	[O1.21] **Functional traits help to explain half-century long shifts in pollinator distributions** J. Aguirre-Gutiérrez*[1,2], W.D. Kissling[1], L.G. Carvalheiro[3,4], M.F. WallisDeVries[5,6], M. Reemer[2,7], M. Franzén[8], J.C. Biesmeijer[1,2] *[1]University of Amsterdam, The Netherlands, [2]Naturalis Biodiversity Center, The Netherlands, [3]Universidade de Brasília, Brazil, [4]Universidade de Lisboa, Portugal, [5]Dutch Butterfly Conservation, The Netherlands, [6]Wageningen University, The Netherlands, [7]European Invertebrate Survey – The Netherlands, The Netherlands, [8]UFZ, Helmholtz Centre for Environmental Research, Germany*	[O2.21] **Sustainability of small-scale fisheries in the Middle Negro River in the state of Amazonas, Brazil: A model with operational and biological variables** S. Inomata*, C. Freitas *Federal University of Amazonas, Brazil*	[O3.21] **Environmental accounting for the urban water system** S. Arden*[1], X. Ma[1] *[1]University of Florida, USA, [2]US Environmental Protection Agency, USA*	[O4.21] **A spatially explicit model of ship strike risks and underwater noise for whale conservation** C. Chion*[1,2], D. Lagrois[1,2], J. Dupras[1,2] *[1]Université du Québec en Outaouais, Canada, [2]Quebec Centre for Biodiversity Science, Canada*	[O5.22] **The impact of uncertainty on model-based management of ecosystem services** G. Gal*, E. Ofir, X. Corrales *Israel Oceanographic and Limnological Research, Israel*
14:40-15:00	[O1.22] **Spatial determinants of the Allee effect** J. Velazquez-Castro*[1], M.P. Eichhorn[2] *[1]Universidad Autonoma de Puebla, Mexico, [2]The University of Nottingham, UK*	[O2.22] **Fish schools in heterogeneous environments – Modelling evolutionary trends in reactions to different sized food patches** H. Reuter*[1,2], M. Kruse[1,2], A. Rovellini[1,2], B. Breckling[1,3] *[1]Leibniz Centre for Tropical Marine Ecology (ZMT), Germany, [2]University of Bremen, Germany, [3]University of Vechta, Germany*	[O3.22] **Assessing the values of water and its allocation under climate change scenarios using a biophysical approach** M. Medina*[1], M. Brown[1], V. Engel[2] *[1]University of Florida, USA, [2]US Geological Survey, USA*	[O4.22] **Simulating the interactions of coupled human and natural systems in Southeast Asia's largest wetland** R.M.J. Boumans*[3,1], M.E. Areas[2], I. Altman[1], L. Kaufman[1] *[1]Boston University, USA, [2]Harvard University, USA, [3]Accounting for Desirable Futures LLC, USA*	
15:00-15:20	[O1.23] **Maxent species distribution modelling highlights the importance of forest reserves to Ghana's large avian**	[O2.23] **Modeling interactions of flow and vegetation for improved riverine ecosystem management**		[O4.23] **An integrated modeling approach to predict the expansion of invasive Zebra Mussels at Northern**	

	frugivores N. Annorbah *Manchester Metropolitan University, UK*	Z. Zhang*[1], J. Wang[2], B. Greimann[3], B.E. Johnson[1] *[1]ERDC-LimnoTech, USA, [2]UCD, USA, [3]USBR, USA*		Latitudes T.M. Swannack*[1,2], M.E. Kjelland[1], C.D. Piercy[1] *[1]US Army Engineer Research and Development Center, USA, [2]Texas State University, USA*	
15:20-15:50	**Refreshment break** **Room: Potomac Lounge**				
15:50-17:10	**Species distribution modelling (ctd.)** **Room: Chesapeake 1** **Chair: S. Lek**	**Systems Ecology** **Room: Chesapeake 2** **Chair: Z. Li**	**Environmental accounting using emergy modeling (ctd.)** **Room: Chesapeake 3** **Chair: E. Campbell**	**Modelling Coupled Natural and Social Systems (ctd.)** **Room: Loch Raven** **Chair: C. Chion**	**Ecological Modelling – general session** **Room: UU 305** **Chair: B. Rashleigh**
15:50-16:10	**[O1.24]** **Combining species distribution models, spatial pattern analysis, and circuit theory to estimate species' potential distribution: The case of the Apennine brown bear** L. Maiorano*, L. Boitani, L. Chiaverini, P. Ciucci *Università di Roma La Sapienza, Italy*	**[O2.24]** **Economic growth and socio-ecological issues** F. Farhidi *Georgia State University, USA*	**[O3.24]** **Modeling the hierarchy of building types** W.W. Braham *University of Pennsylvania, USA*	**[O4.24]** **Socio-ecological impacts of emerald ash borer in New Jersey** N.N. Arbab*, J. Grabosky *Rutgers University, USA*	**[O5.24]** **Modelling plant damages spread induced by lepidopteran stem borer on maize farm** F.T. Ndjomatchoua*[1,6], H.E.Z. Tonnang[2], C. Plantamp[3], F.M.M. Kakmeni[5], C. Tchawoua[6], B.P. Le Ru[1,7] *[1]ICIPE, Kenya, [2]CIMMYT, Kenya, [3]Université de Lyon 1, France, [4]University of Liverpool, UK, [5]University of Buea, Cameroon, [6]Université de Yaoundé 1, Cameroon, [7]IRD, France*
16:10-16:30	**[O1.25]** **Dynamics and persistence in a metacommunity centred on the plant Antirrhinum majus: Theoretical predictions and an empirical test** C.C. Jaworski*[1,2], C. Thébaud[2], J. Chave[2] *[1]University of Arizona, USA, [2]Université Paul Sabatier, France*	**[O2.25]** **On the emergence of scaling laws in the hierarchical, complex ecosystems** B.L. Li *University of California at Riverside, USA*	**[O3.25]** **Spatial modelling of ecosystem services in Charles Co. Maryland using principles of systems ecology** E.T. Campbell*, C.E. Conn *Maryland Department of Natural Resources, USA*	**[O4.25]** **Understanding complex dynamics of Alaska salmon fisheries with an agent-based model** M. Cenek*, M. Franklin *University of Alaska Anchorage, USA*	**[O5.25]** **Vulnerability assessment of Asian longhorned beetle infestation in Massachusetts** J. Porter*, J. Rogan *Clark University, USA*

16:30-16:50	**[O1.26]** **Application of fuzzy models to analyse and predict ecological water quality of rivers in a multifunctional tropical island** M.A.E. Forio*, K. Lock, E.D. Radam, P.L.M. Goethals *Ghent University, Belgium*	**[O2.26]** **Conceptual synthesis toward a rigorous holistic formalism for a unified life-environment system using hypersets** D.A. Fiscus*[1], B.D. Fath[1] *[1]Frostburg State University, USA, [2]Towson University, USA*	**[O3.26]** **Green sponge for a water-resilient city: Emergy-based ecological benefits evaluation of typical urban rainwater harvesting systems** G.Y. Liu*[1], Z.F. Yang[1], L.Y. Xu[1], S. Ulgiati[1,2] *[1]Beijing Normal University, China, [2]Parthenope University of Naples, Italy*	**[O4.26]** **Response of a one-biosphere modeling system to regional land use and management change** E.J. Cooter*[1], J. Bash[1], R. Dodder[1], V. Garcia[1], L. Ran[2], D. Yang[2], M. McCrakin[3], V. Benson[4] *[1]US EPA, USA, [2]Institute for the Environment, USA, [3]Stockhom University, Sweden, [4]Benson Consulting, USA*	**[O5.26]** **Modeling periphyton response to phosphorus load reductions in the Cahaba River, Alabama, USA, using AQUATOX** E.C. Blancher*[1], R.A. Park[2] *[1]Sustainable Ecosystem Restoration, LLC, Mobile AL, USA, [2]Eco Modeling, Diamondhead, MS, USA*
16:50-17:10	**[O1.27]** **Integrating ecological interactions and life cycle aspects in species distribution models** P.L.M. Goethals *Ghent University, Belgium*	**[O2.27]** **Simulations of the cumulative trophic theory of ecosystems** J. Link*[1], F. Pranovi[2], S. Libralato[3] *[1]NOAA Fisheries, USA, [2]University of Venice, Italy, [3]Istituto Nazionale di Oceanografia e di Geofisica Sperimentale, Italy*	**[O3.27]** **H. T. Odum's early ecosystem energetics modelling** P. Kangas *University of Maryland, USA*	**[O4.27]** **The 3 functional use model for the sustainable forest resources management: Examples from the humid forest of the Congo Basin** S.T.N. Numbem *Consulting Firm, Cameroon*	**[O5.27]** **Uncertainties in the Prediction of Winter Wheat Response to Climate Change with Crop-climate Models** M. Ahmed*[1,2], S. Claudio[1], R. Nelson[1], S. Higgins[1] *[1]Washington State University, USA, [2]PMAS Arid Agriculture University Rawalpindi, Pakistan*
17:15-18:00	**ISEM General Meeting**				

Wednesday 11th May 2016

09:00-10:10	**Plenary Session 3** **Chair: Tarzan Legovic** **Room: Chesapeake 1, 2, & 3**
09:00-09:40	**[PL05]** **Linking science and policy through agent-based modelling of complex human-environment systems** L. Parrott, *The University of British Columbia, Canada*
09:40-10:10	**[O1.28]** **The Contributions of Sven Erik Jørgensen** **Flourishing Within the Limits to Growth** S.E. Jørgensen, B.D. Fath, S.N. Nielsen, F.M. Pulselli, D.A. Fiscus, S. Bastianoni *Club of Siena, Italy*
10:10-10:40	**Refreshment break** **Room: Potomac Lounge**

10:40-12:20	Network ecology symposium Room: Chesapeake 1 Chair: S.R. Borrett	Modelling for Environmental Management Room: Chesapeake 2 Chair: D. Mauriello	Eco-hydrological modeling Room: Chesapeake 3 Chair: H. Lin	Ecological Modelling for Climate Change Room: Loch Raven Chair: T. Domingos	Modeling ecological dynamics in temporally variable, spatially heterogeneous environments Room: UU 305 Chair: H.H. Wang
10:40-11:00	**[O1.29]** **Spatial network analysis to study species dispersal** M-J. Fortin *University of Toronto, Canada*	**[O2.28]** **Use of Landsat 8 images to estimate water quality parameters in the Guajaro reservoir, Colombia** F.M. Torres-Bejarano*[1], L.C. Gonzalez Marquez[2], A.C. Torregroza Espinosa[1], I.R. Hansen Rodriguez[2], H.B. Rodriguez Gallegos[2] *[1]Universidad de la Costa, Colombia, [2]Universidad de Occidente, Mexico*	**[O3.28]** **The key technical research on simulator of water quality and alga bloom predicaton in Lake Taihu** Z. Zhang*[1,2], G. Peng[1,2], Z. Song[2,3], F. Guo[1,2], D. Hu[1,2] *[1]Nanjing Normal University, China, [2]Jiangsu Center for Collaborative Innovation in Geographical Information Resource Development and Application, China, [3]Jiangsu Provincial Key Laboratory for Numerical Simulation of Large Scale Complex System, China*	**[O4.28]** **Dynamics and composition of Alaska coastal forests under climate change** M. Zhou*[1], W. Ma[1], X. Zhou[2], J.. Liang[1] *[1]West Virginia University, USA, [2]PNW Research Station, USA*	**[O5.28]** **Spatial ecology of invasive plants, native wildlife, and tick-borne disease risk: Honeysuckle, white-tailed deer, lone star ticks, and ehrlichiosis** H.H. Wang*, W.E. Grant, P.D. Teel *Texas A&M University, USA*
11:00-11:20	**[O1.30]** **Networks: Vertical links among horizontal levels of biological organization** F. Jordán*[1], M. Scotti[2] *[1]MTA Centre for Ecological Research, Hungary, [2]GEOMAR Helmholtz Centre for Ocean Research, Germany*	**[O2.29]** **DHABSIM, a diversity based river habitat simulation software which doesn't require biological/ecological parameters** M. Sekine*, T. Tabe, H. Ito, A. Kanno, K. Yamamoto, T. Higuchi, T. Imai *Yamaguchi University, Japan*	**[O3.29]** **Simulating phosphorus dynamics for lowland polder areas** J. Huang*[1], J. Gao[1], R. Yan[1,2] *[1]Nanjing Institute of Geography and Limnology, China, [2]University of Chinese Academy of Sciences, China*	**[O4.29]** **Resiliency, regeneration and restoration dynamics of a typhoon-damaged forest: The case of the Mt Makiling Forest Reserve, Philippines** N.C. Bantayan*, M.L. Castillo, K. Gonzalvo *University of the Philippines, The Philippines*	**[O5.29]** **A flow network model of rodent dynamics on a heterogeneous urban landscape** R.C. Rael*, C. Taylor *Tulane University, USA*
11:20-11:40	**[O1.31]** **Ecosystem stability is dependent on dynamics and structure** A.D. Canning*, R.G. Death *Massey University, New Zealand*	**[O2.30]** **Influence of fish behavior on the accuracy and precision of underwater visual census surveys. A virtual ecologist approach using an individual-based model** M.P. Pais*, H.N. Cabral *Universidade de Lisboa, Portugal*	**[O3.30]** **Improvement in eco-hydrological modelling through coupling with biogeochemical cycle in aquatic ecosystem** T. Nakayama*, S. Maksyutov *National Institute for Environmental Studies, Japan*	**[O4.30]** **Targeted restoration will help some functional plant types avoid extinction in fragmented landscapes as climate changes** M. Renton *The University of Western Australia, Australia*	**[O5.30]** **Hybrid approaches to couple system-dynamics and individual-based models** G. Wallentin*[1], C. Neuwirth[1] *[1]University of Salzburg, Austria, [2]Ludwig-Maximilians-University München, Germany*

11:40-12:00	**[O1.32]** Food web interactions and prey predator relationship through Network analysis on pelagic-benthic coupled system of Hooghly estuary, India N. Rakshit*, J. Mukherjee, S. Ray *Visva-Bharati University, India*	**[O2.31]** An individual-based model of how the North Sea harbour porpoise population is affected by wind farm development J. Nabe-Nielsen*, F.M. van Beest *Aarhus University, Denmark*	**[O3.31]** Forecasting effects of salinity regime changes on benthic fauna in a shallow marsh using the Benthic Ecology Model (BEM) P.A. Montagna*, E.L. Turner *Texas A&M University-Corpus Christi, USA*	**[O4.31]** Causality quantification on land use cover change and regional climate dynamics in grassland ecosystems J. Li*[1,2], X. Liu[1], B. Fath[2], H. Sun[3], X. Liu[1,3], Y. Xu[1], Z. Wang[1] [1]*Tsinghua University, China,* [2]*Towson University, USA,* [3]*Chinese Academy of Sciences, China*	**[O5.31]** Agent-based simulation – a matter of scale T. Thiel-Clemen*, U.A. Lenfers *Hamburg University of Applied Sciences, Germany*
12:00-12:20	**[O1.33]** Keystone species: How important are they in an ecosystem? A mass balanced network approach A. Banerjee*[1], U.M. Scharler[2], B.D. Fath[3,4], S. Ray[1] [1]*Visva-Bharati University, India,* [2]*University of KwaZulu Natal, South Africa,* [3]*Towson University, USA,* [4]*International Institute for Applied Systems Analysis, Austria*	**[O2.32]** Walking a tight line: Management of a new arctic fishery in the presence of spatially differentiated ecological-economic externalities B.A. Kaiser*[1], L.M. Fernandez[2], M. Kourantidou[1], J.H. Sundet[3] [1]*University of Southern Denmark, Denmark,* [2]*Virginia Commonwealth University, USA,* [3]*Institute for Marine Research, Norway*	**[O3.32]** Modeling water content of plant coarse roots by ground-penetrating radar L. Guo*, H.S. Lin *Penn State University, USA*	**[O4.32]** Using MetaLandSim, an R package for simulating range expansion under landscape scenarios – synergies between climate and landscape change F. Mestre*[1], R. Pita[1], H. Marques[1], P. Costa[1], I. Leitão[1], V. Salgueiro[1], C. Encarnação[1], A. Mira[1], P. Beja[2] [1]*Universidade de Évora, Portugal,* [2]*Universidade do Porto, Portugal*	**[O5.32]** Targeting species persistence under climate change D. Alagador*[1], J.O. Cerdeira[1] [1]*Universidade de Évora, Portugal,* [2]*Universidade NOVA de Lisboa, Portugal*
12:20-14:00	**Lunch & Poster Session 3 Room: Potomac Lounge**				
14:00-15:20	**Network ecology symposium (ctd.) Room: Chesapeake 1 Chair: A.D. Canning**	**Modelling for Environmental Management (ctd.) Room: Chesapeake 2 Chair: A. East**	**Eco-hydrological modeling (ctd.) Room: Chesapeake 3 Chair: L. Guo**	**Ecological Modelling for Climate Change (ctd.) Room: Loch Raven Chair: J. Syvitski**	**Modeling ecological dynamics in temporally variable, spatially heterogeneous environments (ctd.) Room: UU 305 Chair: T. Koralewski**
14:00-14:20	**[O1.34]** Review and synthesis of five flow decomposition techniques in Ecosystem Network Analysis S.R. Borrett *University of North Carolina Wilmington, USA*	**[O2.33]** Toxicity modelling oriented population density: The case study of bromine T.A. Perminova*[1,2], B. Laratte[1], N.V. Baranovskaya[1,2] [1]*The University of Technology of Troyes, France,* [2]*Tomsk Polytechnic University, Russia*	**[O3.33]** The MOUSE open-source java-based toolbox for ecological model evaluation J.C. Ascough II*[1], C. Fischer[2], N.P. Lighthart[3], O. David[3], S. Kralisch[2] [1]*USDA-ARS, USA,* [2]*Friedrich Schiller University, Germany,* [3]*Colorado State University,*	**[O4.33]** Ecophysiological individual-based model for predicting population dynamics of *Aedes* C.E.O. Klein*, P.J. De Marco *Universidade Federal de Goiás, Brazil*	**[O5.33]** Modelling changes in functional diversity in temporally and spatially heterogeneous environments M.A. Jarzyna*, W. Jetz *Yale University, USA*

			USA	
14:20-14:40	**[O1.35]** **Assessment of the effect of empirical data ranges on the variability of network analysis outcomes** U.M. Scharler*[1], M. Tagliarolo[1], K. Ortega-Cisneros[2], A. Ludovisi[3] *[1]University of KawZulu-Natal, South Africa, [2]Rhodes University, South Africa, [3]University of Perugia, Italy*	**[O2.34]** **Software for pollutants transport in rivers and for identification of excessive pollution sources** K.J. Kachiashvili *Georgian Technical University, Georgia*	**[O3.34]** **Modelling of organic matter reactive transport in estuarine sediments: Bio-irrigation effect** K. Khalil*[1], C. Rabouille[2], M. Raimonet[1], A.M. Laverman[4], K. Elkalay[1] *[1]Cadi Ayyad University-Ecole Supérieure de Technologie Essaouira, Morocco, [2]Laboratoire des Sciences du Climat et de l'Environnement, France, [3]Université Pierre et Marie Curie, France, [4]Université de Rennes 1, France*	**[O4.34]** **Climate change impacts on nekton distribution in the North Atlantic Ocean** P. Jacobs*, K. de Mutsert, K. Lewis *George Mason University, USA*	**[O5.34]** **Calibrating invasive species risk maps to predict establishment probability** R.S. Epanchin-Niell *Resources for the Future, USA*
14:40-15:00	**[O1.36]** **Balancing ecosystem models to achieve steady state** C. Kazanci *University of Georgia, USA*	**[O2.35]** **Dynamic models to link impacts of chemicals from molecules to ecosystems** V.E. Forbes*[1], N. Galic[2], C. Murphy[3], C. Salice[4], R. Nisbet[5] *[1]University of Minnesota, USA, [2]University of Minnesota, USA, [3]Michigan State University, USA, [4]Towson University, USA, [5]University of California, USA*	**[O3.35]** **Mathematical model for the transport of fluoroquinolone antibiotics and its resistant culture in aquatic environment** R. Gothwal*, S. Thattikonda *Indian Institute of Technology Hyderabad, India*	**[O4.35]** **Applications of high resolution ocean-atmosphere-biological coupled model simulations: Forecasting ecosystem indicators and fish habitat** I. Ortiz*[1], A. Hermann[1], S. Zador[2], C. Rooper[2], N. Laman[2], K. Aydin[2] *[1]University of Washington, USA, [2]Alaska Fisheries Science Center, USA*	**[O5.35]** **Evaluating the uncertainty in long-term fish monitoring data in the San Francisco Estuary** K.A. Millers*[1], J.T. Peterson[2] *[1]Oregon State University, USA, [2]US Geological Survey, USA*
15:00-15:20	**[O1.37]** **Quantifying trait-mediated effects' influence in ecological networks using hypergraphs** A.J. Golubski*, E.E. Westlund *Kennesaw State University, USA*	**[O2.36]** **Oxycline formation induced by Fe(II) oxidation in a water reservoir affected by Acid Mine Drainage (CE-QUAL-W2)** E. Torres*[1], L. Galván[2], C. Ruiz-Cánovas[2], S. Soria-Píriz[3], C. Ayora[1] *[1]Institute of Environment Assessment and Water Research, Spain, [2]University of*	**[O3.36]** **Modeling thermodynamic entropy fluxes in ecosystems** H.S. Lin *Penn State University, USA*	**[O4.36]** **Impacts of warming temperatures on Ross Sea biogeochemistry as assessed by 1D model experiments** D.E. Kaufman*[1], M.A.M. Friedrichs[1], W.O. Smith[1], E.E. Hofmann[2], J.C.P. Hemmings[3,4] *[1]College of William & Mary, USA, [2]Center for Coastal Physical Oceanography, USA, [3]Wessex Environmental*	**[O5.36]** **Ecosystem's thermodynamical characteristics, based on multispectral remote sensing date** R. Sandlerskiy*, Y. Puzachenko, *A.N. Severtsov Institute of Ecology and Evolution Russian Academy of Science, Russia*

		Huelva, Spain, [3]University of Cadiz, Spain		*Associates, UK, [4]Met Office, UK*	
15:20-15:50	**Refreshment break** **Room: Potomac Lounge**				
15:50-17:10	**Network ecology symposium (ctd.)** **Room: Chesapeake 1** **Chair: A.J. Golubski**	**Modelling for Environmental Management (ctd.)** **Room: Chesapeake 2** **Chair: M. Sekine**	**Modelling Lakes and Wetlands** **Room: Chesapeake 3** **Chair: S.N. Nielsen**	**Ecological Modelling for Climate Change (ctd.)** **Room: Loch Raven** **Chair: M. Taffi**	**Modeling ecological dynamics in temporally variable, spatially heterogeneous environments (ctd.)** **Room: UU 305** **Chair: R. Epanchin-Niell**
15:50-16:10	**[O1.38]** **Trophic transfer efficiency: Origins, justifications, and applications in ecological models** B.D. Fath[1], *[1]Towson University, USA, [2]International Institute for Applied Systems Analysis, Austria*	**[O2.37]** **Applying the physicist's approach to agroecosystems: Grass livestock & over-yielding** H. Fort *Universidad de la Republica, Uruguay*	**[O3.37]** **Biophysical modeling assessment of the drivers for plankton dynamics in dreissenid-colonized western Lake Erie** L. Jiang*[1], M. Xia[1], S.A. Ludsin[2], E.S. Rutherford[3], D.M. Mason[3], J. Marin Jarrin[4], K.L. Pangle[4] *[1]University of Maryland Eastern Shore, USA, [2]The Ohio State University, USA, [3]National Oceanic and Atmospheric Administration Great Lakes Environmental Research Laboratory, USA, [4]Central Michigan University, USA*	**[O4.37]** **Development of Individual based models of aquatic insects for assessment on influence of climate change on river ecosystems** M. Denda*, Y. Kayaba *Public Works Research Institute, Japan*	**[O5.37]** **Model of the population dynamics of *Lutzomyia longiflocosa* vector of cutaneous leishmaniasis in Colombia** G. Mestre, O. Ramos*, A. Delgadillo *Universidad de La Salle, Colombia*
16:10-16:30	**[O1.39]** **Simulation and verification of the impact of trawling on an estuarine ecosystem** J.J. Luczkovich*[2,1], R.A. Deehr[2,1], K.J. Hart[3,1], L.M. Clough[4,1], J.C. Johnson[5,1] *[1]East Carolina University, USA, [2]Hutchison School, USA, [3]NC Division of Marine Fisheries, USA, [4]US National Science Foundation, USA, [5]University of Florida, USA*	**[O2.38]** **Spatial blueprints for a more durable use of resistance genes against plant disease** M.E. Lof*[1], C. de Vallavieille-Pope[2], W. van der Werf[1] *[1]Wageningen University, The Netherlands, [2]INRA, France*	**[O3.38]** **Modeling approach to describe the water quality and aquatic ecosystems in lake with different eutrophication levels** E. Komatsu*[1,2], T. Fukushima[1], K. Kamiya[1,3] *[1]Tsukuba University, Japan, [2]LERCS, Japan, [3]Kasumigaura Environmental Science Center, Japan*	**[O4.38]** **Modelling nitrogen incorporation by primary producers of a Mediterranean coastal area** K. Elkalay*[1], C. Frangoulis[2], J. Richer[3], Z. Damsiri[1], L. Natij[1], K. Khalil[1] *[1]ESTE, Morocco, [2]HCMR, Greece, [3]ULG, Belgium*	
16:30-16:50	**[O1.40]** **Nitrogen and phosphorus**	**[O2.39]** **A probabilistic fire regime**	**[O3.39]** **Persistence and diversity of**	**[O4.39]** **Recent changes in spawning**	**[O5.39]** **Ecological processes drive**

	dynamics in an ecosystem model of Lake Okeechobee, USA: Insights from network environ analysis S.J. Whipple* *University of Georgia, USA,*	simulator using Bayesian Networks T.D. Penman*, D. Ababei *University of Melbourne, Australia*	directional landscape connectivity improves biomass pulsing in dynamic oligotrophic wetlands S. Yurek*[1], D.L. DeAngelis[1,2], J.C. Trexler[3], J.A. Klassen[4], L.G. Larsen[5] [1]*University of Miami, USA,* [2]*Wetland and Aquatic Research Center, U. S. Geological Survey, USA,* [3]*Florida International University, USA,* [4]*Florida Atlantic University, USA,* [5]*University of California, Berkeley, USA*	behavior in Winter-run Chinook salmon are partially adaptive and partially maladaptive with climate change. River management matters! L. Crozier*, E. Danner, A. Pike, S. John *NOAA-Fisheries, USA*	the epidemiology of environmental pathogens L. Ruokolainen*, J. Anttila *University of Helsinki, Finland*
16:50-17:10	**[O1.41]** **Network stability: Do wet or dry food webs differ?** R.G. Death, A.D. Canning* *Massey University, New Zealand*	**[O2.40]** **Movement analysis of aquatic indicator specimens in response to chemical disturbances** Y.D. Liu*[1], R.R. Wu[1], Z.Y. Wang[1], T-S. Chon[2] [1]*South China Institute of Environmental Sciences, China,* [2]*Ecology and Future Research Association, Republic of Korea*	**[O3.40]** **Numerical modeling on the effects of Tsunami in the ecosystem of Kamaishi Bay (Japan) by MEC model** M.N. Islam*[1], D. Kitazawa[2] [1]*Jahangirnagar University, Bangladesh,* [2]*University of Tokyo, Japan*	**[O4.40]** **Projecting the state of the Mediterranean Sea ecosystem under contemporary and future climate** C. Solidoro*[1,2], P. Lazzari[1], D. Melaku Canu[1], G. Cossarini[1], T. Lovato[1], M. Vichi[1], C. Martin[1], M. Giannoulaki[1] [1]*Istituto Nazionale di Oceanografia e di Geofisica Sperimentale OGS, Italy,* [2]*International Centre for Theoretical Physic, Italy*	**[O5.40]** **The potential use of a dynamic Bayesian network model to predict long-term trends of ecosystem change in response to fisheries catch, temperature and productivity scenarios** N. Trifonova*[1], A. Kenny[2], D. Maxwell[2], D. Duplisea[3], A. Tucker[1] [1]*Brunel University, UK,* [2]*CEFAS, UK,* [3]*Fisheries and Oceans, Canada*
18:15-22:00	**Conference Dinner** **Venue: National Aquarium, Baltimore, MD** **Guests to meet at 17:15, for a prompt departure at 17:30**				
	Thursday 12th May 2016				
08:45-09:00	**Awards Presentation** **Room: Chesapeake 1, 2, & 3**				
09:00-09:40	**Plenary Session 4** **Chair: Ursula Scharler** **Room: Chesapeake 1, 2, & 3**				

09:00-09:40	**[PL06]** **Individual-based/agent-based modelling unifying ecological theory: Eventually getting there** V. Grimm, *Helmholtz Centre for Environmental Research – UFZ, Germany*				
09:40-10:10	**Refreshment break** **Room: Potomac Lounge**				
10:10-11:50	**Network Modelling** **Room: Chesapeake 1** **Chair: C. Kazanci**	**Modelling for Environmental Management (ctd.)** **Room: Chesapeake 2** **Chair: M. Denda**	**Forest ecosystem models as decision support systems for ecological forest management** **Room: Chesapeake 3** **Chair: G. Larocque**	**Modeling human behaviors/decisions and their impacts on the environment** **Room: Loch Raven** **Chair: L. An**	**Modeling ecological dynamics in temporally variable, spatially heterogeneous environments (ctd.)** **Room: UU 305** **Chair: R. Rael**
10:10-10:30	**[O1.42]** **Network clockwork-standing-stockworks: how first-order linear transfer coefficients arise holistically from storage delay in transactional networks** B.C. Patten *University of Georgia, USA*	**[O2.41]** **Dispersal of *Halophila nippoinca* seed in the southern coastal waters of Korea** B.K. Kim*, J.K. Kim *Chonnam National University, Republic of Korea*	**[O3.41]** **Evaluating forest and fire management effects on landscape dynamics: A modeling approach in Mediterranean ecosystems** N. Aquilué*[1,2], A. Duane[2], A. Gil-Tena[2], M.J. Fortin[3], C. Messier[4], L. Brotons[2,5] *[1]Université du Québec à Montréal, Canada, [2]InForest JRU (CTFC-CREAF), Spain, [3]University of Toronto, Canada, [4]Université du Québec en Outaouais, Canada, [5]CSIC, Spain*		**[O5.41]** **Stratification effects on harmful algal blooms in a tropical estuary** A.T. Yniguez*, J. Maister, C.L. Villanoy, C.J. Bollozos, A. Almo, L.T. David, G.A. Benico, R.V. Azanza *University of the Philippines, The Philippines*
10:30-10:50	**[O1.43]** **Network analysis: Opening new vistas** R.E. Ulanowicz[1] *[1]Univ. Florida, USA, [2]Univ. Maryland Ctr. Env. Sci., USA*	**[O2.42]** **Theoretical considerations about small mammals abundance on an epidemiological context** L.F. Rodriguez Carrillo*, D. Erazo, J.M. Cordovez *Universidad de Los Andes, Colombia*	**[O3.42]** **An individual-based forest isoprene emission model** B. Wang*, H.H. Shugart, J.K. Shuman, M.T. Lerdau *University of Virginia, USA*	**[O4.42]** **A multi-agent system for locust plagues management** P-E. Gay, M. Lecoq, C. Piou* *CIRAD, France*	**[O5.42]** **The corals we don't see: Using IBMs to simulate the invasion dynamics of the sun coral (Tubastraea coccinea)** A.F.A. Andrade*, C.E.O. Klein, P. De Marco *Universidade Federal de Goiás, Brazil*
10:50-11:10	**[O1.44]** **Can network analyses guide and improve surveillance strategies for crop pests?** M.D. Triska[1,2], M. Renton*[1] *[1]The University of Western Australia, Australia, [2]Plant*	**[O2.43]** **Mitigating adverse effects of human disturbance on Golden eagles (Aquila chrysaetos) using an individual-based modelling approach**	**[O3.43]** **Model sensitivity to gap size and explicit light representation in boreal forests** K. Brazhnik*, H.H. Shugart *University of Virginia, USA*	**[O4.43]** **Recreation management for wildlife and humans: An interdisciplinary simulation modeling approach** P.A. Zollner*[1], A. Cohen[2], S. Atallah[3], Z. Ma[1], L. Prokopy[1], S.	**[O5.43]** **Thorough calibration of an integrated spatio-temporal ecosystem model** P-A. Château*[1,2], P-J. Liu[3,4], H-J. Lin[5], Y-C. Chang[1] *[1]National Sun Yat-Sen*

	Biosecurity Cooperative Research Centre, Australia	L.E. D'Acunto*[1], R. Spaul[2], J. Heath[2], P.A. Zollner[1] *[1]Purdue University, USA, [2]Boise State University, USA*		Garcia de Jalon[1] *[1]Purdue University, USA, [2]CARDNO, USA, [3]University of New Hampshire, USA*	*University, Taiwan, [2]Academia Sinica, Taiwan, [3]National Museum of Marine Biology and Aquarium, Taiwan, [4]National Dong-Hwa University, Taiwan, [5]National Chung-Hsing University, Taiwan*
11:10-11:30	**[O1.45]** **Bioaccumulation modelling and sensitivity analysis for discovering key players in contaminated food webs: The case study of PCBs in the Adriatic Sea** M. Taffi*[1,2], N. Paoletti[3], P. Liò[4], S. Pucciarelli[1], M. Marini[2] *[1]University of Camerino, Italy, [2]National Research Council, Italy, [3]University of Oxford, UK, [4]University of Cambridge, UK*		**[O3.44]** **Predicting the combined impacts of climate change and selective logging on tropical moist forests in Central Africa: A mixture of inhomogeneous matrix models for species-rich ecosystems** F. Mortier*[1], F. Claeys[1], D-Y. Ouédraogo[2], S. Gourlet-Fleury[1], M.G. Tadesse[3], N. Picard[4] *[1]CIRAD, France, [2]Université de Liège, Belgium, [3]Georgetown University, USA, [4]Food and Agriculture Organization of the United Nations, Italy*	**[O4.44]** **Spatially-explicit simulation modelling of actor-driven processes of land-use change - the APoLUS model** R.J. Hewitt*[1], C. de Boer[2], V. Hernández Jiménez[1] *[1]Observatorio para Una Cultura del Territorio, Spain, [2]University of Twente, The Netherlands*	**[O5.44]** **Bio-physical model simulations of spatio-temporal growth and survival dynamics of Lesser Sandeel (*Ammodytes marinus*) early life-stages in the North Sea** Z. Gurkan *Technical University of Denmark, Denmark*
11:30-11:50	**[O1.46]** **Invasion and saturation risk of pathogens and pests based on global cropland connectivity** Y. Xing*[1], J. Hernandez Nopsa[1], J. Andrade-Piedra[2], F. Beed[3], G. Blomme[4], M. Carvajal Yepes[5], D. Coyne[6], G. Forbes[7], J. Kreuze[8], K. Garrett[1] *[1]University of Florida, USA, [2]International Potato Center (CIP), Ecuador, [3]International Institute of Tropical Agriculture (IITA), Tanzania, [4]Bioversity, Uganda, [5]International Center for Tropical Agriculture (CIAT), Colombia, [6]IITA, Kenya, [7]CIP,*		**[O3.45]** **Boosting plant migration: Boosted regression modelling as a tool to guide decisions on assisted migration of forest trees under changing climate** T.E. Koralewski*[1], H.H. Wang[1], W.E. Grant[1], T.D. Byram[2,1] *[1]Texas A&M University, USA, [2]Texas A&M Forest Service, USA*	**[O4.45]** **Modeling human decision-making and their interactions with the Guizhou Golden Monkey habitat use** L. An*[1], S. Yang[1], H.L. Chen[1], L. Shi[2], W. Zhang[2] *[1]San Diego State University, United States Minor Outlying Islands, [2]Fanjingshan National Nature Reserve, China*	

	China, [8]CIP, Peru			
11:50-12:10			**[O3.46]** **Modeling birch seed supply and seedling establishment during forest regeneration** E. Holmström*, M. Karlsson, U. Nilsson *Swedish University of Agricultural Sciences, Sweden*		
11:50-13:20	**Lunch** **Room: Today, lunch can be taken in one of the campus dining halls** **(Please refer to the lunch ticket in the back of your delegate badge for further information)**				
13:20-15:00	**Urban System Modelling and Global Change** **Room: Chesapeake 1** **Chair: B. Chen**	**Ecological Landscape and Land Use Change Modelling** **Room: Chesapeake 2** **Chair: R. Hewitt**	**Room: Chesapeake 3**	**Modeling human behaviors/decisions and their impacts on the environment (ctd.)** **Room: Loch Raven** **Chair: J. Koch**	**Author Workshop** **Tips for publishing high quality papers: An editor's perspective** **Room: UU 305** **Chair: B. Fath**
13:20-13:40	**[O1.47]** **Multi-scale urban system modelling for thermal comfort liveability planning and design** T.K. Lim*[1], N.H. Wong[1] *[1]National Environment Agency, Singapore, [2]National University of Singapore, Singapore*	**[O2.46]** **Embedding crop- and wood-productivity simulated data into a land use model in the context of the West African Savannah** M. Jiménez*[1], C. Fürst[2] *[1]Center for Development Research, Germany, [2]Karlsruhe Institute of Technology, Garmisch-Partenkirchen, Germany*		**[O4.46]** **Agent-based model for peat-fire ignition in central Sumatra, Indonesia** M.A. Imron*, B.M. Sopha, A. Amelia *Universitas Gadjah Mada, Indonesia*	
13:40-14:00	**[O1.48]** **Cross-scale analysis for urban arable land use: Urban function in globalization** M.Y. Han*, G.Q. Chen, X. Ji *Peking University, China*	**[O2.47]** **Modelling surface energy balance of shifting rainfed agro-ecosystems and its response to groundwater in Western Victoria, SE Australia** R. Roohi*, J. Webb, S. Jones *LaTrobe University, Australia*		**[O4.47]** **Solutions to group challenges based on anti-coordination and motivation-asymmetry** E. Bindewald *Frederick Community College, USA*	
14:00-14:20	**[O1.49]** **Fine particulate matter: A key risk factor for human health in urban development - a case**	**[O2.48]** **How promoting biofuels can change land use in Indian agriculture**		**[O4.48]** **Utilizing ensemble approach in agent-based model to simulate the livelihood of**	

	study in Ploiesti City, Romania D. Dunea*[1], S. Iordache[1], E. Lungu[1] *[1]Valahia University of Targoviste, Romania,*	Y. Bhatt*[1], N. Ghosh[1], N. Tiwari[2] *[1]Institute of Economic Growth, India, [2]Kumaon University, India*		**small farming households** Y. Dou*[1], P. Deadman[1], D. Robinson[1], N. Vogt[2] *[1]University of Waterloo, Canada, [2]National Institute of Space Research, Brazil*
14:20-14:40	**[O1.50]** **Modelling the carbon cycle of Asansol-Durgapur urban system, India** S. Mandal[1], S. Ray*[2] *[1] The University of Burdwan, India, [2] Visva-Bharati University, India*	**[O2.49]** **Spatial allocation of conservation practices to maximize bioenergy production and water quality at a regional scale** J.A.F. Kreig*, H.I. Jager, L.M. Baskaran *Oak Ridge National Laboratory, USA*		**[O4.49]** **Effects of payments for terrestrial carbon storage: An agent-based simulation of exurban land development** S. Sun *University of Illinois Springfield, USA*
14:40-15:00	**[O1.51]** **The optimization of land allocation for coordinating development of urban expansion, farmland protection and ecosystem conservation** T. Zhou[1], X. Ke*[2] *[1]VU University Amsterdam, Amsterdam, The Netherlands, [2]Huazhong Agricultural University, China*	**[O2.50]** **Should I stay or should I go now: Modelling habitat selection mechanisms** L.M. Sanchez Clavijo, J. Hearns*, P.F. Quintana-Ascencio *University of Central Florida, USA*		**[O4.50]** **A combined ABM-CA approach for the analysis of landowner decisions and peer-influence on development patterns** J. Koch*[1], M.A. Dorning[2], Q. Zhang[3], A. Shashidharan[3], D. Van Berkel[3], G. Sanchez[3], L. Ford[3], J.W. Smith[3], R.K. Meentemeyer[3] *[1]University of Oklahoma, USA, [2]U.S. Geological Survey, USA, [3]NC State University, USA*
15:00-15:30	**Conference Closing Address** **Room: Chesapeake 1, 2, & 3**			