

# The 2022 International Symposium on Ecohydraulics

October 10-14, 2022 | Nanjing, China



## Program Book



# Contents

Welcome Message	3
Conference Information	4
Local Organizing Committee	4
International Scientific Committee	4
Guideline for Participants	6
Online Participants	6
Offline Participants	6
Accommodation	7
Transportation to the Venue & Hotel	8
Program at a Glance	12
Pre-conference Workshop	14
Opening Ceremony	15
Keynote Speeches	18
Closing Ceremony	23
Session List	25
Oral Presentation – Oct 11 <sup>th</sup>	31
Oral Presentation – Oct 12 <sup>th</sup>	37
Oral Presentation – Oct 13 <sup>th</sup>	47

## Welcome Message

On behalf of the International Association for Hydro-Environment Engineering and Research and the local organizing committee, we cordially invite you to the 14<sup>th</sup> International Symposium on Ecohydraulics that will be held from October 10<sup>th</sup> to 14<sup>th</sup> 2022 in Nanjing, China, an ancient capital of ten dynasties in Chinese history, boasting numerous historic sites, splendid cultural heritages, beautiful cityscape and sceneries.



Ecohydraulics is a rapidly developing inter-discipline of ecology and hydraulics brought about by the ever-growing concern of aquatic and riparian ecology. Since its first edition in 1994, the International Symposia on Ecohydraulics (ISE) have provided platforms for scientists and engineers worldwide to discuss cutting-edge scientific progress, compare and evaluate state-of-the-art technical methods, and recommend them to the end-users.

ISE 2022 covers a wide spectrum of topics related to ecohydraulics in theory and in practice, including the hydrological, hydraulic, morphodynamic, structural, ecological, biological, and technical aspects of the discipline. Five high-profile keynote speeches will be presented. We are expecting you to present at the symposium and share the latest advancement of your research with the international scientific community. Special issues on Journal of Ecohydraulics, International Journal of Sediment Research, Ecohydrology, and Environmental Science & Ecotechnology focusing on this conference will be published. Traditionally, ISE features an ECoENet pre-conference workshop which helps early career researchers working in ecohydraulics find opportunities and overcome challenges. Starting from the current edition, ISE plans to provide an interactive lecture for a helpful technical tool applied in one of these three topics: (1) fieldwork, (2) lab experiments, and (3) numerical simulations, and rotate among them in the future.

Jianyun Zhang

Yangtze Institute for Conservation & Development, China

Nanjing Hydraulic Research Institute, China

### Local Organizing Committee

#### Conference Chair

Jianyun Zhang (Yangtze Institute for Conservation & Development; Nanjing Hydraulic Research Institute, China)

#### Chief Executive

Hongwu Tang (Hohai University, China)

Hongwei Fang (Tsinghua University, China)

#### Secretary General

Qiuwen Chen (Yangtze Institute for Conservation & Development; Nanjing Hydraulic Research Institute, China)

Xudong Fu (Tsinghua University, China)

Jinhai Zheng (Hohai University, China)

Shiqiang Wu (Nanjing Hydraulic Research Institute, China)

Gaohu Sun (IAHR Beijing Office; China Institute for Water Resources and Hydropower Research, China)

#### Deputy Secretaries

Mengzhen Xu (Tsinghua University, China)

Chunhui Lu (Yangtze Institute for Conservation and Development; Hohai University, China)

Yuqing Lin (Nanjing Hydraulic Research Institute, China)

#### Members

Jindong Cai (IAHR Beijing Office; China Institute for Water Resources and Hydropower Research, China)

Liuming Hu (Nanjing Hydraulic Research Institute, China)

Ruiyu Wang (Tsinghua University, China)

Zi Wu (Tsinghua University, China)

### International Scientific Committee

#### Chairs

Joseph Lee (IAHR, Macau University of Science and Technology, China)

Peter Goodwin (University of Maryland, USA)

Roger Falconer (Cardiff University, UK)

Vladimir Nikora (University of Aberdeen, UK)

Gregory Pasternack (University of California at Davis, USA)

#### Past and current members and advisors of IAHR Ecohydraulics Committee

##### Leadership Team

Ana Adeva Bustos (ECOeNET, SINTEF, Norway)

Angus Webb (University of Melbourne, Australia)

## Conference Information

Arthur Mynett (IHE Delft & Delft University of Technology, the Netherlands)  
Bettina Bockelmann-Evans (Cardiff University, UK)  
Byungwoong Choi (Yonsei University, South Korea)  
Hervé Capra (INRAE Lyon, France)  
Chris Katopodis (Katopodis Ecohydraulics Ltd, Canada)  
Claudio Meier (University of Memphis, USA)  
Christoph Hauer (Boku, Vienna, Austria)  
Carlos Alonso (Universidad Politecnica de Madrid, Spain)  
Davide Vanzo (ETH Zurich, Switzerland)  
Diego García de Jalón (Technical University of Madrid, Spain)  
Ellis Penning (Deltares, the Netherlands)  
Emilio Politti (University of Trento, Italy)  
Francisco Martínez Capel (Universitat Politècnica de València, Spain)  
Gregory Egger (Karlsruhe Institute of Technology, Germany)  
Gregory Pasternack (University of California at Davis, USA)  
Harm Duel (Deltares, the Netherlands)  
Helmut Mader (Boku, Vienna, Austria)  
Hyoseop Woo (Gwangju Institute of Science and Technology, South Korea)  
Ian Jowett (National Institute of Water and Atmospheric Research Limited, Hamilton, New Zealand)  
Jing Peng (China Institute of Water Resources and Hydropower Research, China)  
Klaus Jorde (KJ Consult, Austria)  
Marie-Pierre Gosselin (Norwegian Institute for Nature Research, Norway)  
Markus Noack (University of Stuttgart, Germany)  
Martin Wilkes (University of Essex, UK)  
Mengzhen Xu (Tsinghua University, China)  
Michael Stewardson (University of Melbourne, Australia)  
Morten Stickler (University of South-Eastern Norway, Norway)  
Nicolas Lamouroux (INRAE Lyon, France)  
Natasa Smolar-Zvanut (Institute for Water of the Republic of Slovenia, Republic of Slovenia)  
Paul Kemp (University of Southampton, UK)  
Piotr Parasiewicz (S. Sakowicz Inland Fisheries Institute, Poland)  
Rafael Tinoco (University of Illinois at Urbana-Champaign, USA)  
Rohan Benjankar (Southern Illinois University Edwardsville, USA)  
Robert T. Milhous (Midcontinent Ecological Science Center, Biological Resources Division, US Geological Survey, USA)  
Roser Casas-Mulet (Technical University of Munich, Germany)  
Samhee Lee (Korea Institute of Construction Technology, Korea)  
Shinji Fukuda (Tokyo University of Agriculture and Technology, Japan)  
Sung-Uk Choi (Yonsei University, South Korea)  
Tetsuro Tsujimoto (Department of Geo-Environmental Engineering, Nagoya University, Japan)  
Thomas B. Hardy (Texas State University, USA)  
Valerie Ouellet (University of Birmingham, UK)



## Conference Information

Wengen Liao (General Institute of Water Resources and Hydropower Planning and Design, Ministry of Water Resources, Beijing, China)

Xiaodong Qu (China Institute of Water Resources and Hydropower Research, China)

Yann Le Coarer (INRAE Lyon, France)

## Guideline for participants

### Online participants

#### Session chairs and presenters

Zoom meeting linkage will be sent via email! If you have not yet received the zoom meeting link information, please contact the LOC of ISE at your earliest convenience ([sec@ise2022.org](mailto:sec@ise2022.org) or [mz xu@mail.tsinghua.edu.cn](mailto:mz xu@mail.tsinghua.edu.cn)).

### Other Participants



[Click here](#) or scan the above code to enter the conference rooms. There are 7 conference rooms. The pre-conference ECoENet biannual meeting is in **ECoENet**. The opening ceremony, closing ceremony, and the keynote speeches are in **Main track**. Presentations are categorized in **5 groups**: **S1** Hydrologic aspect of ecohydraulics; **S2** Hydraulic aspect of ecohydraulics; **S3** Ecohydraulics on micro-scale; **S4** Ecohydraulics on macro-scale; **S5** Applied Technology in Ecohydraulics. Each group includes 8-10 sessions. Each sessions includes 3-5 presentations. Please locate your presentation in the session lists.

Due to the current pandemic situation in China, the symposium will be held mainly online. Oral presentations are preferred but poster presentations are also welcome. Please use [Poster Template for ISE 2022](#) to compose your poster. You can send your poster to [sec@ise2022.org](mailto:sec@ise2022.org). We will demonstrate all posters in the [E-poster display room](#). An oral presentation is composed of **12 min presentation + 3 min Q&A**. Speakers should use English for the presentations. If you cannot show up in the session personally, you can send a pre-recorded video of the presentation to [sec@ise2022.org](mailto:sec@ise2022.org) and the session chair can play it in the session.

### Offline participants

If you want to attend the symposium onsite, please contact Prof. Chunhui Lu, Hohai University ([clu@hhu.edu.cn](mailto:clu@hhu.edu.cn)) for information of lodging and epidemics-related issues.

**Conference Venue:** Hohai University, 1 Xikang Road, Nanjing, China

## Conference Information

**ECoENet Biannual Meeting:** Meeting Room **202** at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

**Opening ceremony:** Meeting Room **108** at the Wen Tian Guan, Hohai University

Link to the map of the venue: <https://s.yicode.org.cn/4xwlua>



**Wen Tian Guan (闻天馆) in Hohai University**

**Closing ceremony:** Meeting Room **202** at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

Link to the map of the venue: <https://s.yicode.org.cn/ysdiiv>

**Technical Session Group S1:** Meeting Room **107** at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

**Technical Session Group S2:** Meeting Room **202** at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

**Technical Session Group S3:** Meeting Room **212** at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

**Technical Session Group S4:** Meeting Room **310** at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

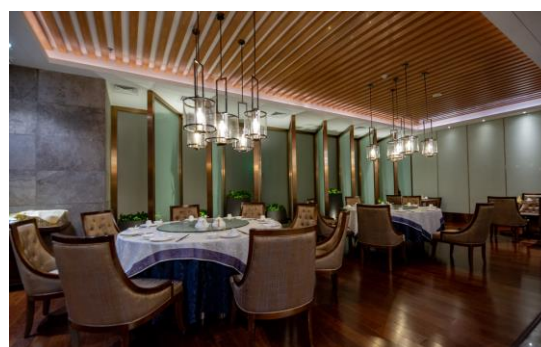
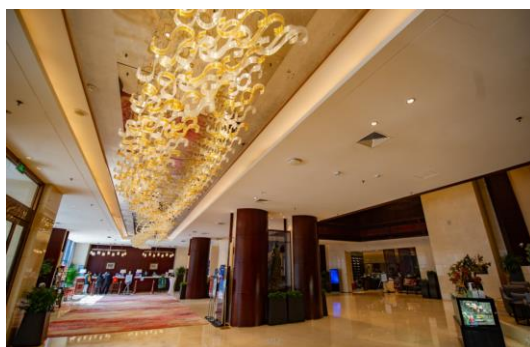
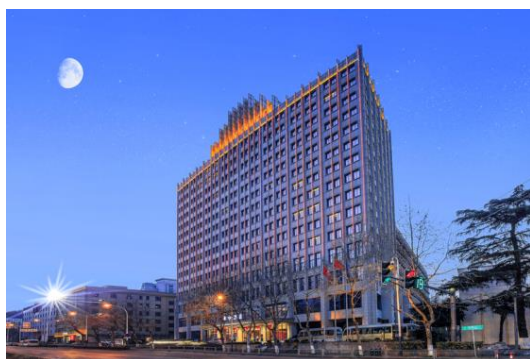
**Technical Session Group S5:** Meeting Room **406** at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

## Conference Information

### Accommodation

Hohai International Conference Center & Hotel (Nanjing Juanheng Hotel) is located at 1 Xikang Road, Gulou District, Nanjing, next to Hohai University. It is located in the downtown of Nanjing. It takes just a 10 minutes' drive to Xijiekou Business Center, 20 minutes to Nanjing Railway Station and Nanjing South Railway Station, and 50 minutes to Nanjing Lukou International Airport. The excellent position makes it an ideal lodging place for business, academic, and sightseeing travelers.

The total area of the hotel is about 35,000 m<sup>2</sup>. The hotel has 340 guest rooms of all types, including suite, deluxe room, superior room, standard room, etc. It features various types of conference rooms, a full-time cafeteria, restaurants, a banquet hall, and complete entertainment facilities. It is a multi-function hotel providing catering, accommodation, conference, tourism reception, education and training, international exchange services and other services.



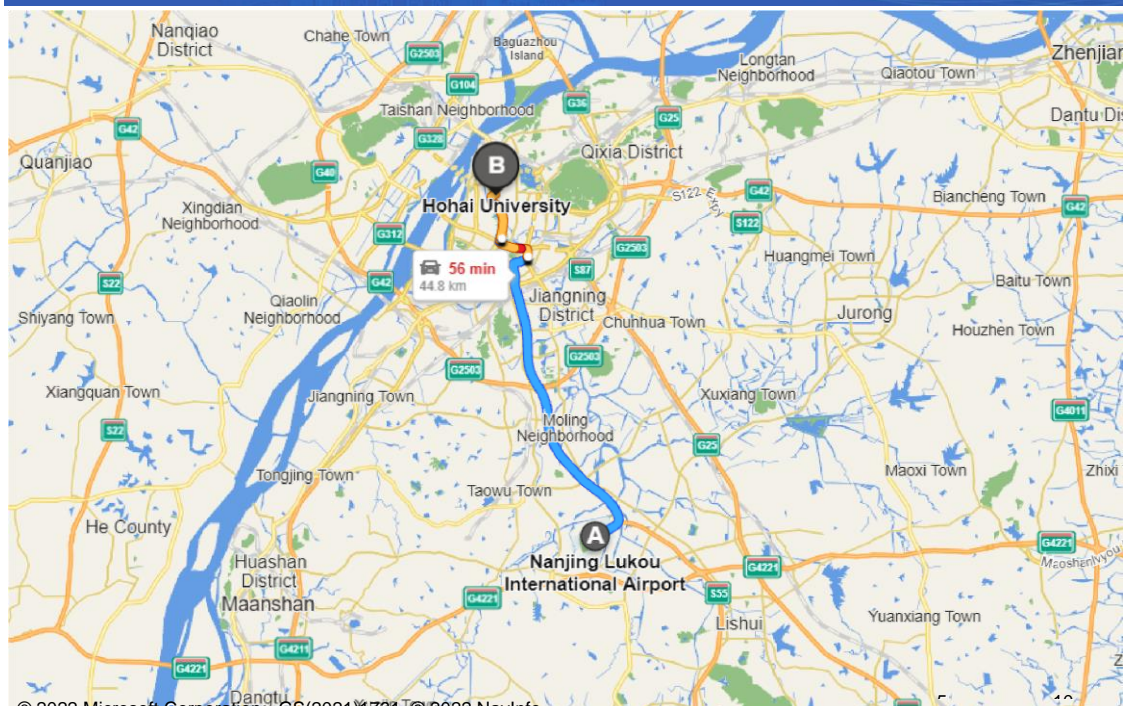
### Transportation to the Venue & Hotel

#### From Nanjing Lukou International Airport

The venue is 45 km from Nanjing Lukou International Airport. It costs about ¥ 100 by taxi to go to the venue from the airport. To reach the venue by public transportation, take Metro Line S1 from the airport to Nanjing South Railway Station (南京南站), change to Metro Line 1 to Gulou Station (鼓楼站), and change to Metro Line 4 to Caochangmen Station (南艺·二师·草场门站). Then take a 13 min walk and get to Gate 2 of Hohai University.



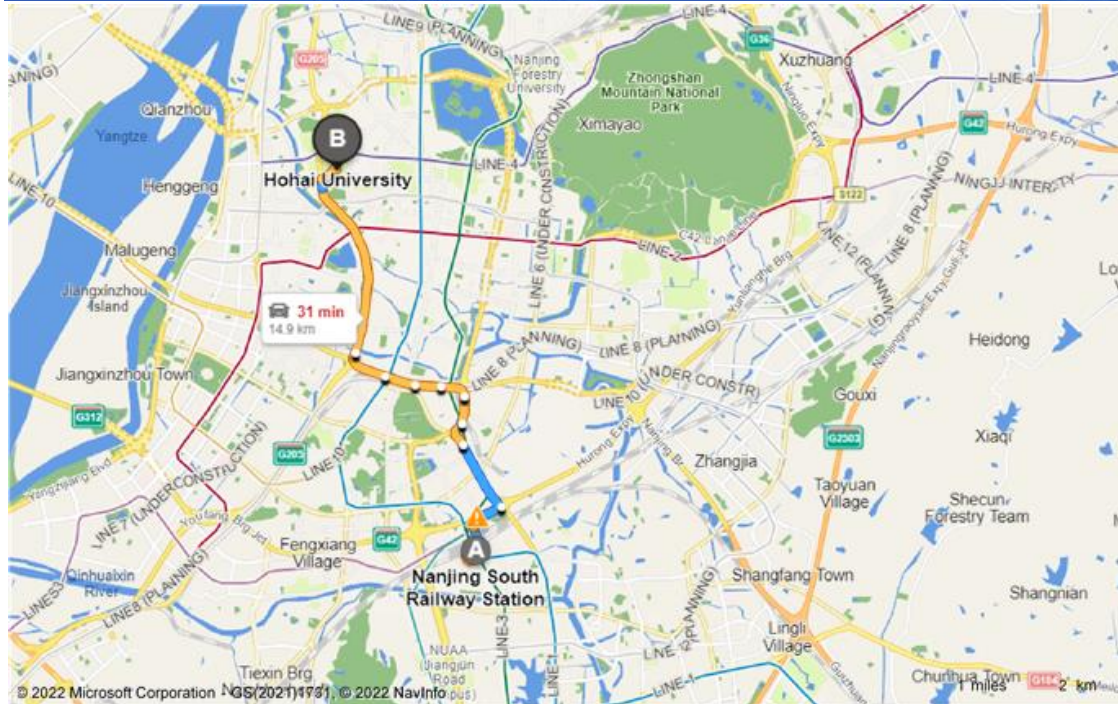
## Conference Information



### From Nanjing South Railway Station

The venue is 14 km from Nanjing South Railway Station (南京南站). It costs about ¥ 40 to go to the venue by taxi from Nanjing South Railway Station. To reach the venue by public transportation, take Metro Line 1 from Nanjing South Railway Station (南京南站) to Gulou Station (鼓楼站), then change to Metro Line 4 to Caochangmen Station (南艺·二师·草场门站). Then take a 13-min walk and get to Gate 2 of Hohai University.

## Conference Information

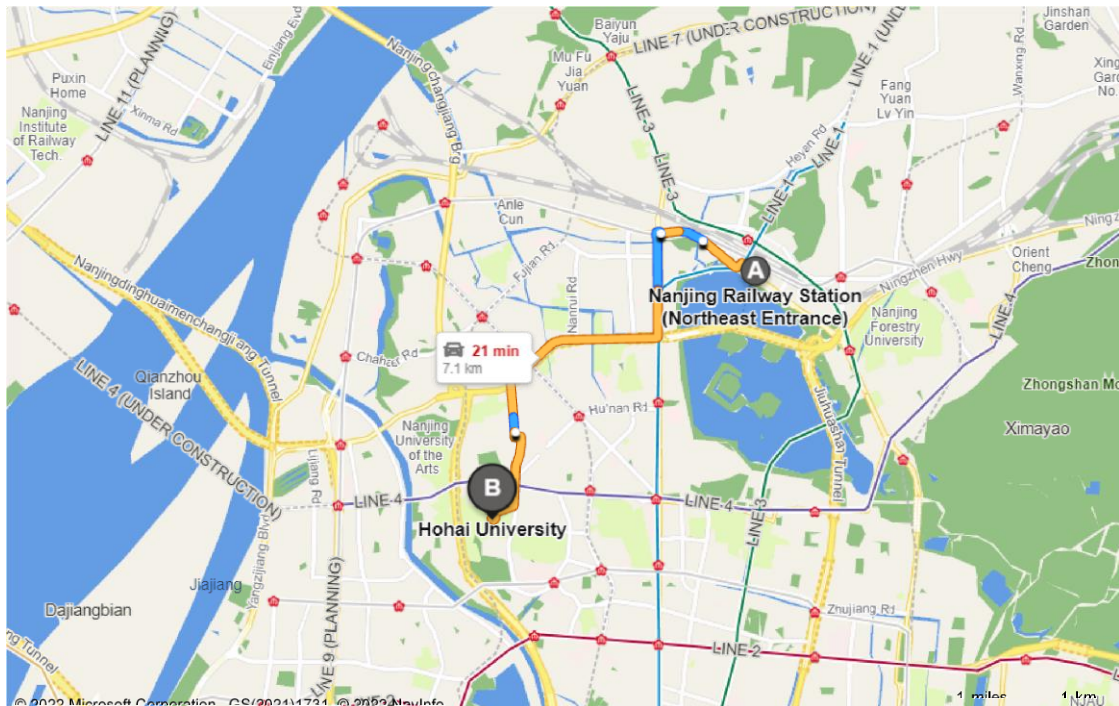


### From Nanjing Railway Station

The venue is 10 km from Nanjing Railway Station (南京站). It costs about ¥26 to go to the venue by taxi from Nanjing Railway Station. To reach the venue by public transportation, take Metro Line 1 from Nanjing Railway Station (南京站) to Gulou Station (鼓楼站), change to Metro Line 4 to Caochangmen Station (南艺·二师·草场门站). Then take a 13-min walk and get to Gate 2 of Hohai University.



## Conference Information



## Program at a Glance

**Note:** This is an overview of the programs. The exact time of each session may be slightly different from that shown in the table. Please refer to the List of Oral Presentations for the exact time of your presentation. All times here are **Beijing Time (UTC+8)**. Please convert it to the time zone of your place.

Time	Oct. 10 <sup>th</sup>	Oct. 11 <sup>th</sup>	Oct. 12 <sup>th</sup>	Oct. 13 <sup>th</sup>
09:00-10:00		Opening		
10:00-11:00	Onsite Registration & CNC-IAHS Ecohydrology Annual Meeting	Keynote 1	S1-4, S2-3, S3-3, S4-3, S5-3	S2-7, S3-6, S4-7
11:00-12:00		Keynote 2	S2-4, S3-4, S4-4	S3-7, S4-8
12:00-14:00	Lunch			
14:00-15:00	Registration	Keynote 3	Keynote 4	Keynote 5
15:00-16:00	14:30-18:00 ECoENet Biannual Meeting	S1-1, S2-1, S3-1, S4-1, S5-1	S1-5, S2-5, S4-5, S5-4	S1-8, S2-8, S3-8, S4-9, S5-7
16:00-17:00		S2-2, S5-2	S1-6, S2-6, S3-5, S4-6, S5-5	S2-9, S3-9, S4-10, S5-8
17:00-18:00		S1-2, S3-2, S4-2	S5-6	Closing
18:00-22:00	Dinner			
22:00-23:00		S1-3	S1-7	

Presentations are categorized in **5 groups**: **S1** Hydrologic aspect of ecohydraulics; **S2** Hydraulic aspect of ecohydraulics; **S3** Ecohydraulics on micro-scale; **S4** Ecohydraulics on macro-scale; **S5** Applied Technology in Ecohydraulics. Each group includes 8-10 sessions. Each session includes 3-5 presentations. Please locate your presentation in the session lists.

## Program at a Glance

Oct 11 <sup>th</sup>					
Theme	Hydrology	Hydraulics	Micro-scale	Macro-scale	Technology
9:00-10:00	Opening Ceremony				
10:00-11:00	Keynote 1, Evelyn Habit				
11:00-12:00	Keynote 2, Jinren Ni				
Lunch					
14:00-15:00	Keynote 3, Thibault Datry				
15:00-16:00	S1-1	S2-1	S3-1	S4-1	S5-1
16:00-17:00		S2-2			S5-2
17:00-18:00	S1-2		S3-2	S4-2	
Dinner					
22:00-23:15	S1-3				

Oct 12 <sup>th</sup>					
Theme	Hydrology	Hydraulics	Micro-scale	Macro-scale	Technology
9:00-10:00					
10:00-11:00	S1-4	S2-3	S3-3	S4-3	S5-3
11:00-12:00		S2-4	S3-4	S4-4	
Lunch					
14:00-15:00	Keynote 4, Brian D. Fath				
15:00-16:00	S1-5	S2-5		S4-5	S5-4
16:00-17:00	S1-6	S2-6	S3-5	S4-6	S5-5
17:00-18:00					S5-6
Dinner					
22:00-23:00	S1-7				

Oct 13 <sup>th</sup>					
Theme	Hydrology	Hydraulics	Micro-scale	Macro-scale	Technology
9:00-10:00					
10:00-11:00		S2-7	S3-6	S4-7	
11:00-12:00			S3-7	S4-8	
Lunch					
14:00-15:00	Keynote 5, Taylor Maavara				
15:00-16:00	S1-8	S2-8	S3-8	S4-9	S5-7
16:00-17:00		S2-9	S3-9	S4-10	S5-8
17:00-18:00	Closing Ceremony				



### **ECoENet biannual meeting - Local challenges and global networking**

The Early Careers on Ecohydraulics Network (ECoENet) is an international network engaging early careers in developing and consolidating ecohydraulics as an interdisciplinary field of research. ECoENet seeks to strengthen the identity and integration of ecohydraulic disciplines and remove some of the key barriers facing early career researchers.

In this online biannual meeting, we will discuss and work together on emerging challenges in ecohydraulics research and practice in the Asian continent and how a global network can aid early careers in solving these challenges, thereby making the next career step. During the meeting, we will report on our activities, collect your feedback and sketch some action directions for the future.

**When:** Monday 10<sup>th</sup> October 2022, 14:30 to 18:00 (Beijing time, UTC+8), 8:30 to 12:00 (CEST, UTC+2).

**Where:** The ZOOM link to the event will be available from the conference webpage (<https://ise2022.org/>).

## Opening Ceremony

### **Opening Ceremony Speech**     **Oct 11<sup>th</sup> 9:00-9:15**



#### **Prof. Hongwu Tang**

Hohai University

#### **Title of Speech:**

Welcoming Message

#### **Personal Profile:**

Prof. Hongwu Tang, Academician of Chinese Academy of Engineering and doctoral supervisor, currently serves as the Chairman of Administrative Committee of Hohai University and holds concurrent posts of the Vice President of Chinese Hydraulic Engineering Society and the President of Jiangsu Society of Theoretical and Applied Mechanics.

Prof. Hongwu Tang has been committed to talent training, scientific research and engineering practice in the field of hydraulics and river mechanics, with a remarkable contribution in the study and application of plain hydrodynamics and river and lake treatment as an academic leader of this field. He has successively presided over and undertaken more than 150 projects under various programs such as National Programs for Science and Technology Development, key research project of National Natural Science Foundation, National High-tech R&D Program (863 Program), Introducing Advanced Water Science and Technology to China Program by Ministry of Water Conservancy (948 Program) as well as provincial and ministerial projects for science and technology development and other key (major) projects. These projects provide innovative solutions to vital scientific and technological problems in key (major) river management projects for Huaihe River, Yangtze River, Pearl River, Ganjiang River and other water areas; the solutions have been applied and promoted in the design and operation of more than 100 water conservancy projects, with many globally advanced or leading research results. He received 4 second prizes of State Award for Science and Technology Progress, and 5 first and grand prizes of Provincial and Ministerial Awards for Science and Technology Progress; published 4 monographs, more than 200 papers, among which 136 papers were indexed by SCI/EI, and got one international paper award; authorized 45 patent inventions; edited 4 sets of industry standards and participated in the editing of one set. The team led by him has been rated as the Pioneer Team of Jiangsu Province by Jiangsu Higher Education System.

## Opening Ceremony

### Opening Ceremony Speech    Oct 11<sup>th</sup> 9:15-9:30



#### **Prof. Gregory Pasternack**

University of California at Davis

#### **Title of Speech:**

Ecohydraulics Community: Past and Future

#### **Abstract:**

The IAHR Technical committee on ecohydraulics aims to provide a professional home for the global community of scientists working on the basic science of and practical solutions for addressing the intertwined physical-ecological functioning of aquatic and riparian ecosystems. For the 2020-2022 period, the technical committee was led by a leadership team (LT) composed of 10 elected members from around the world, of which 40% were women. Despite the challenging times of the covid pandemic, the LT engaged in a large number of activities that helped both IAHR and the larger ecohydraulics community. LT members play a large role in organizing technical sessions at major conferences around the world. They also support the Journal of Ecohydraulics, run a community website, provide content for a YouTube channel, and distribute free merchandise. The next international symposium in ecohydraulics will be held in Quebec City in 2024. There is a great need for ecohydraulicists to help the world achieve several sustainable development goals.

#### **Personal Profile:**

Gregory Pasternack is a professor of hydrology at University of California at Davis. He received M.S. in Environmental Water Resource Engineering at University of California, Berkeley, and Ph.D. in Geography and Environmental Engineering at Johns Hopkins University. His research interests include geomorphic and hydrologic characterization of the impacts of historic and modern human activities on watershed and estuarine processes, river restoration, watershed-estuarine interactions on multiple time scales, and wetland restoration. His career goal is to help society manage and restore hydrogeomorphic processes in support of enhanced ecosystem functioning. To reach this goal, his team adopts a combination of measures including (i) basic physical and ecological science to understand how the naturally complex landscape works, (ii) development of methods and software for designing more natural, functional environments, and (iii) technology transfer to get concepts, methods, and results into the hands of practitioners, regulators, and stakeholders. He is the current president of the Committee on Ecohydraulics of IAHR. The orientation of the committee consists in close collaborations with other international associations working in the field of aquatic ecosystems, in setting up speciality working groups on specific themes, and in working on state-of-the-art papers, monographs, guidelines for “end users”. The general aims are to bring specialists together in order to discuss, compare and evaluate methods in these fields, and to propose with recommendations for the end-users.

## Opening Ceremony

### Opening Ceremony Speech

Oct 11<sup>th</sup> 9:30-9:45



### **Prof. Zhiyu Zhong**

Ministry of Water Resources of China

#### **Title of Speech:**

Message from the Ministry of Water Resources of China

#### **Personal Profile:**

Dr. Zhiyu Zhong is the Chief Engineer of the Ministry of Water Resources of China and the Vice Chairman of Hubei Provincial Committee of Jiusan Society. He is engaged in the research on the Yangtze River Basin and the planning and design of major water conservancy projects for long term, responsible for the preparation of integrated planning, flood control planning, and water resources planning for the Yangtze River Basin, and in charge of many national key research & development, and technological difficulty tackling projects, such as the Technology for Multi-objective Combined Dispatching of Cascade Reservoirs in the Upper Reaches of the Yangtze River. In recognition of his key contributions to the Yangtze River management, he has won several high-level honors, such as the Top Ten Outstanding Youths of Organs of Hubei Province, Young and Middle-aged Experts with Outstanding Contributions of Hubei Province, Qian Ning Award for Sediment Sciences, Liu Guangwen Award for Engineering Technology, etc.

## Keynote Speeches

### **Plenary Talk 1**

**Oct. 11<sup>th</sup> 10:00-11:00**



### **Prof. Evelyn Habit**

Universidad de Concepción, Chile

#### **Title of the Speech:**

Past, present and future connectivity of Chilean Andean Rivers: implications for fish conservation

#### **Abstract:**

Connectivity plays a crucial role in maintaining the structural and functional attributes of river networks and their biota. A proper understanding of the drivers affecting river connectivity, and thus, fish dynamics, requires consideration of both historical and contemporary processes. This information in turn provides evidence of how fish are likely to respond to future landscape changes. Results of researches using a multitemporal approach to examine the consequences of riverine connectivity alteration will be shown. In the past, events like the rise of the southern Andes and the Quaternary glacial cycles shaped riverine landscapes, influencing river connectivity, and affecting the phylogeographic and biogeographic patterns of its fish fauna. More recently, the global hydropower boom is acting as one of the main drivers of changes in connectivity (fragmentation), with significant effects on the diversity of riverine biota. Several examples of native Chilean species and how past and present river connectivity changes have affected their genetic composition, population and metapopulation structure, assemblage composition and beta diversity will be shown. Finally, implications for conserving a valuable endemic set of species for the expected loss of connectivity will be discussed.

#### **Personal Profile:**

Evelyn Habit is a fish biologist, full Professor at the Faculty of Environmental Science of Universidad de Concepción in Chile. Her research focus is on freshwater fish ecology and management. She addresses questions related to human activities as drivers of the status of freshwater fish populations and communities, emphasising the conservation of Chilean native species. She is interested in unravelling the effects of multiple stressors on riverine watersheds studying responses at different ecological levels and spatial and temporal scales. She is particularly interested in understanding the impacts of invasive species, flow regime alterations, physical connectivity changes and climate change in Andean and Patagonian river watersheds.



## Keynote Speeches

### **Plenary Talk 2**

**Oct. 11<sup>th</sup> 11:00-12:00**



### **Prof. Jinren Ni**

Peking University, China

#### **Title of the Speech:**

Three Gorges Dam: friend or foe of riverine greenhouse gases?

#### **Abstract:**

Dams are often regarded as greenhouse gas (GHG) emitters. However, our study indicated that the world's largest dam, the Three Gorges Dam (TGD), has caused significant drops in annual average emissions of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O over 4300 km along the Yangtze River, accompanied by remarkable reductions in the annual export of CO<sub>2</sub> (79%), CH<sub>4</sub> (50%) and N<sub>2</sub>O (9%) to the sea. Since the commencement of its operation in 2003, the TGD has altered the carbonate equilibrium in the reservoir area, enhanced methanogenesis in the upstream, and restrained methanogenesis and denitrification via modifying anoxic habitats through long-distance scouring in the downstream. These findings suggest that 'large-dam effects' are far beyond our previous understanding spatiotemporally, which highlights the fundamental importance of whole-system budgeting of GHGs under the profound impacts of huge dams.

#### **Personal Profile:**

Dr. Jinren Ni is a professor at the College of Environmental Sciences and Engineering in Peking University, and an academician of Chinese Academy of Sciences. He is mainly engaged in the research of water and sediment sciences, water pollution control, and integrated river management. He and his colleagues developed one-step process for simultaneously removal of ammonia and nitrate nitrogen under aerobic conditions. He has put forward the concept of all-material fluxes in rivers, led large-scaled monitoring campaigns on all-material fluxes in the Yellow River, the Yangtze River, the Lancang River, the Nu River, and urban rivers, and provided key technologies for multi-function regulation and ecological restoration of rivers.

## Keynote Speeches

### **Plenary Talk 3**

**Oct. 11<sup>th</sup> 14:00-15:00**



### **Prof. Thibault Datry**

French National Research Institute for Agriculture, Food and the Environment, Lyon, France

#### **Title of the Speech:**

Intermittent rivers and ephemeral streams: a challenge for freshwater science

#### **Abstract:**

For several centuries, freshwater research has focused on perennial rivers and streams which flow all year round. However, those which don't, because they cease to flow or dry up completely at some stage in space and time, (hereafter intermittent rivers and ephemeral streams, IRES), are a very recent addition to the field, although they comprise more than half of the global river network and dominate in many areas, including Mediterranean regions. Concepts that have guided studies of biological communities and biogeochemical fluxes, and material exchange between rivers and the atmosphere, land, ocean and groundwater presume perennial flow and continuous hydrological connectivity. In IRES, the loss of hydrological continuity affects virtually all ecological processes, including the evolution, dispersal and habitat selection of aquatic and terrestrial species. In this keynote, I will discuss the challenges that IRES pose to river sciences and present why advancing IRES research is needed for improving the management of river networks in the Anthropocene era.

#### **Personal Profile:**

Prof. Thibault Datry is a freshwater scientist at INRAE (French National Research Institute for Agriculture, Food and the Environment) leading the EcoFlowS lab in Lyon, France. His research focuses on the ecology of rivers and hyporheic zones, with particular emphasis on intermittent rivers and ephemeral streams. He has passion for understanding the effects of natural and anthropogenic changes on community and ecosystem processes at multiple scales and translating it into tools and guidelines for water managers. He is developing international research programs at the global scale, while his study area primarily includes lotic and lentic ecosystems in France, New Zealand and Bolivia, where he has active collaborations and frequent visits. In the past 15 years, he has published over 100 peer-reviewed papers related to stream and groundwater ecology and edited with two colleagues (and friends) the first book on the science and management of intermittent rivers and ephemeral streams. He serves on editorial boards of four international journals, organized two Special Issues and more than twenty Special Sessions on intermittent river ecology management at international conferences.

## Keynote Speeches

### **Plenary Talk 4**

**Oct. 12<sup>th</sup> 14:00-15:00**



### **Prof. Brian D. Fath**

Towson University, Maryland, USA

#### **Title of the Speech:**

Conbiotic gradient formation in soils and drainage basins: evidence of win-win ecological interactions

#### **Abstract:**

The earth is a living planet and life processes influence all aspects of it. In this presentation, we introduce the concept of conbiota (with life) to replace the antiquated and reductionistic term abiota (without life). These conbiotic interactions often result in synergistic outcomes that improve both the life and environment relations. Soil formation is one of the best examples, through ecological succession, of improving conditions that further support life processes. We question how humans can learn from nature to design and develop, evolve and inform, more synergistic and sustainable socio-ecological relations.

#### **Personal Profile:**

Brian D. Fath is a Professor in the Department of Biological Sciences at Towson University (Maryland, USA). He has published over 180 research papers, reports, and book chapters on environmental systems modeling. His research focuses on sustainability science, which is a critically important area that encompasses a broad range of research interests including ecosystem services, biodiversity, natural resources, human cultures, and specific environments. He uses network analysis to investigate thermodynamic sustainability indicators. These indicators are often referred to as ecological goal functions, which are used to describe the direction of development that ecosystem properties such as energy or exergy flow, biomass production, or respiration undergo during succession. These metrics help understand the overall behavior and health of that system and its response due to perturbations. A main advantage of using network analysis is the ability to view the ecosystem as a connected web of interactions. He prefers to regard it as a more holistic approach because it considers the behavior of individual compartments as embedded in a larger network of interactions. He is also interested in how ecosystems interact with human systems and vice versa. Integrated environmental assessment is an interdisciplinary and social process linking knowledge and action in public policy aimed at identifying and analyzing interactions of natural and human processes which determine both the current and future states of environmental quality.

## Keynote Speeches

### **Plenary Talk 5**

**Oct. 13<sup>th</sup> 14:00-15:00**



### **Prof. Taylor Maavara**

University of Leeds, UK

#### **Title of the Speech:**

Carbon cycling in inland waters

#### **Abstract:**

River networks transport dissolved organic carbon (DOC), carbon dioxide, and methane from terrestrial uplands to the coastal ocean. The extent to which a reach or lake within a river network uptakes DOC depends on the stream order, the seasonal conditions, and the flow, with important implications for watershed greenhouse gas dynamics and ecosystem health. At the watershed scale, it remains unclear whether DOC uptake is dominated by biological processes such as respiration, or abiotic processes like photomineralization. The partitioning of DOC uptake in lakes versus rivers is also unclear, representing a very basic, fundamental knowledge gap in carbon cycling. In this talk, I will present the first model that unifies the year-round controls on DOC cycling for an entire river network, including the effects of river-lake connectivity, to elucidate the importance of biotic vs. abiotic controls on DOC uptake in lakes and rivers. I will present the Catchment Uptake and Sinks by Season, Order, and Flow for DOC (CUPS-OF-DOC) model, which quantifies terrestrial DOC loading, gross primary productivity (GPP), and uptake via microbes and photomineralization. The model is applied to the Connecticut River Watershed in the United States, and accounts for cascading reach- and lake-scale DOC cycling across ninety-eight scenarios spanning combinations of flows, seasons, and stream orders. I will show that riverine DOC uptake is relatively constant with stream order, but the proportion of DOC uptake that is from photomineralization varies. Photomineralization dominates in rivers in most flow conditions and stream orders, especially in winter. Whole-watershed DOC uptake occurs mostly via biomineralization in lakes, with rivers accounting for less than 10% of DOC uptake during the growing season, despite accounting for more than 90% of the open water surface area. I will present these findings in the context of what this means for ongoing studies focused on quantifying greenhouse gas emissions from inland waters.

#### **Personal Profile:**

Taylor Maavara is a research scientist in the School of Geography at the University of Leeds. She is an aquatic biogeochemist, studying a range of perturbations to nutrient and carbon cycles in inland and near-coastal waters, including river damming and climate change. She is both a field researcher and modeler, with a particular expertise on developing novel scaling techniques to quantify watershed- to global-scale anthropogenic impacts and feedbacks.

## Closing Ceremony

### **Closing Ceremony Speech** Oct 13<sup>th</sup> 17:00-17:30



**Prof. Hongwei Fang**

**Prof. Qiuwen Chen**

**Title of Speech:**

Summary of ISE2022

#### **Personal Profiles:**

Dr. Hongwei Fang is currently a Professor of the Department of Hydraulic Engineering, Tsinghua University, who also serves as the Provost and Academic President of the Southern University of Science and Technology. Prof. Fang's research interests encompass numerical simulation of sediment - laden flow, environmental sediment and impact on water environment, eco-fluvial dynamics, and water cluster dynamics, etc. He is the leading author of three books, and has published 193 research papers in refereed journals. He is the Editor-in-chief of the International Journal of Sediment Research and an associate editor of Journal of Hydraulic Engineering. He has won the National Award of Science and Technology of China twice (2017, 2020) and has been awarded the Chinese Education Ministry Award of Science and Technology twice (2001, 2008). His publication "Biofilm effects on size gradation, drag coefficient and settling velocity of sediment particles" in the International Journal of Sediment Research (2016) has been characterized as an outstanding contribution to sedimentation studies by the Council of the World Association for Sedimentation and Erosion Research (WASER).

Dr. Qiuwen Chen is the director of the Center for Eco-Environmental Research at Nanjing Hydraulic Research Institute. He has long been engaging in research and application of cutting-edge technologies in the ecological environment protection of major river basins. Prof. Chen has led major projects of the National Natural Science Foundation of China (NSFC) that include Creative Research Group, Distinguished Youth, Key Support Project, Major International Cooperation Project; and the National Program on Key Basic Research (973 Project), National High-tech Research and Develop Program (863 Project), major projects on water pollution control and management, projects on national key research and development programs, etc. He has published over 350 research papers, among which over 180 papers were indexed by SCI, and authorized 51 invention patents, which have had great academic impact and social benefits. He has won the IAHR Arthur Thomas Ippen Award for outstanding contributions in the field of environmental hydroinformatics and ecohydraulics, IWA Project Innovation Award, Science Xplore Award, the National Award of Science and Technology of China, and 10 awards on provincial and ministerial levels (first prizes).



## Closing Ceremony

### Closing Ceremony Speech

Oct 13<sup>th</sup> 17:30-17:45



**Prof. Valérie Ouellet**

**Prof. André St-Hilaire**

**Title of Speech:** ISE2024: Quebec City, Canada eagerly awaits your arrival!

**The next edition of International Symposium on Ecohydraulics will be held in 2024 in Quebec City, Canada.** Prof. Valérie Ouellet and Prof. André St-Hilaire are invited to give a talk about ISE 2024.

### **Abstract:**

ISE2024 will be held in Québec City, Canada. Québec City was founded in 1608, and is a UNESCO Heritage Site. Our city is known for its historic charm and unique architecture, with over 400 years of French history and culture. The downtown core is unique, with a blend of French and British architectures, scenic viewpoints and breathtaking views of the famous and majestic St. Lawrence River. It is thus an ideal site to host our conference. In addition to the usual research themes that are part of every ISE conference (e.g., hydraulic modelling, fish passage, morphodynamics, habitat modelling, etc.) sessions related to the use of citizen science and traditional knowledge, remote sensing, fish habitat and hydropower will be held. Please join us in 2024!

### **Personal Profiles:**

Valérie Ouellet is a Diadromous Species Scientist working in NOAA Fisheries. She works on understanding how different environmental variables, such as water temperature and flow, affect the habitat and physiology of key fish species. She aims to understand how aquatic ecosystems are changing to inform on restoration strategies and aquatic resources management, especially in the context of human-impacted systems and climate change. She is now focussing on diadromous fish, their interactions, and how the changes in marine and freshwater ecosystems affect their productivity.

Dr. André St-Hilaire is a professor in Hydrology at INRS, Université du Québec in Québec City. He is a member of the Hydroclimatic Statistics Research Group at that same university. He holds a BSc in Physics and Oceanography from Royal Roads Military College (BC), a Masters of Applied Sciences in estuarine hydrodynamics from Université de Moncton and a PhD in Water Science from INRS. His current research focuses on environmental hydrology, with an emphasis on hydrological extremes as well as hydrological, habitat and water quality modelling with recent developments in water temperature and river sediment.

## Session List

Session ID	Contents
<b>Opening</b>	<p><b>Title:</b> Welcoming Message <b>Speaker:</b> Hongwu Tang</p> <p><b>Title:</b> Ecohydraulics Community: Past and Future <b>Speaker:</b> Gregory Pasternack</p> <p><b>Title:</b> Message from the Ministry of Water Resources of China <b>Speaker:</b> Zhiyu Zhong</p> <p><b>Session chair:</b> Hongwei Fang / Qiuwen Chen</p>
<b>Keynote 1</b>	<p><b>Title:</b> Past, present and future connectivity of Chilean Andean Rivers: implications for fish conservation <b>Speaker:</b> Evelyn Habit</p> <p><b>Session chair:</b> Hongwei Fang / Qiuwen Chen</p>
<b>Keynote 2</b>	<p><b>Title:</b> Three Gorges Dam: friend or foe of riverine greenhouse gases? <b>Speaker:</b> Jinren Ni</p> <p><b>Session chair:</b> Hongwei Fang / Qiuwen Chen</p>
<b>Keynote 3</b>	<p><b>Title:</b> Intermittent rivers and ephemeral streams: a challenge for freshwater science <b>Speaker:</b> Thibault Datry</p> <p><b>Session chair:</b> Hongwei Fang / Qiuwen Chen</p>
<b>Keynote 4</b>	<p><b>Title:</b> Conbiotic gradient formation in soils and drainage basins: evidence of win-win ecological interactions <b>Speaker:</b> Brian D. Fath</p> <p><b>Session chair:</b> Hongwei Fang / Qiuwen Chen</p>
<b>Keynote 5</b>	<p><b>Title:</b> Carbon cycling in inland waters <b>Speaker:</b> Taylor Maavara</p> <p><b>Session chair:</b> Hongwei Fang / Qiuwen Chen</p>
<b>Closing</b>	<p><b>Title:</b> Summary of ISE2022 <b>Speaker:</b> Hongwei Fang / Qiuwen Chen</p> <p><b>Title:</b> ISE2024: Quebec City, Canada eagerly awaits your arrival! <b>Speaker:</b> Valérie Ouellet, André St-Hilaire</p> <p><b>Session chair:</b> Hongwei Fang / Qiuwen Chen</p>

## Session List

Session ID	Contents
<b>Session 1-1 (S1-1)</b>	<p><b>Title:</b> Special Session on Integrating Ecohydraulics and Ecohydrology in Environmental Flow Assessment and implementation (1)</p> <p><b>Conveners:</b> Francisco Martinez-Capel, Universitat Politècnica de València, Spain; Shinji Fukuda, Tokyo University of Agriculture and Technology, Japan; Michael McClain, IHE Delft Institute for Water Education, the Netherlands; Daniele Tonina, University of Idaho, USA</p>
<b>Session 1-2 (S1-2)</b>	<p><b>Title:</b> Environmental Flow (1)</p> <p><b>Chair:</b> Silvia Quadroni, University of Insubria, Italy</p>
<b>Session 1-3 (S1-3)</b>	<p><b>Title:</b> Special Session on Integrating Ecohydraulics and Ecohydrology in Environmental Flow Assessment and Implementation (2)</p> <p><b>Conveners:</b> Francisco Martinez-Capel, Universitat Politècnica de València, Spain; Shinji Fukuda, Tokyo University of Agriculture and Technology, Japan; Michael McClain, IHE Delft Institute for Water Education, the Netherlands; Daniele Tonina, University of Idaho, USA</p>
<b>Session 1-4 (S1-4)</b>	<p><b>Title:</b> Special Session on Sustainability of Ecology and Hydrology of Floodplain Lake Systems of the Large River Basins under Rapidly Changing Climatic and Social Dimensions</p> <p><b>Conveners:</b> Giri R Kattel, Nanjing University of Information Science and Technology, Nanjing, China; University of Melbourne, Melbourne, Australia; Zhiguo Yu, Nanjing University of Information Science and Technology, Nanjing, China; Hong Yang, University of Reading, Reading, United Kingdom</p>
<b>Session 1-5 (S1-5)</b>	<p><b>Title:</b> Environmental Flow (2)</p> <p><b>Chairs:</b> Lotta Blaskovicova, Slovak Hydrometeorological Institute, Slovakia; Xiongdong Zhou, Tsinghua University, China</p>
<b>Session 1-6 (S1-6)</b>	<p><b>Title:</b> Hydropeaking</p> <p><b>Chair:</b> Daniel Hayes, University of Natural Resources and Life Sciences, Austria</p>
<b>Session 1-7 (S1-7)</b>	<p><b>Title:</b> Special Session on Hydrological Connectivity of River Ecosystems</p> <p><b>Conveners:</b> Shanghong Zhang, North China Electric Power University, Beijing, China; Silke Wieprecht, University of Stuttgart, Stuttgart, Germany; Yujun Yi, Beijing Normal University, Beijing, China; Sebastian Schwindt, University of Stuttgart, Stuttgart, Germany; Jin Zhang, Yantai University, Yantai, China</p>
<b>Session 1-8 (S1-8)</b>	<p><b>Title:</b> Effect of Climate Change on Ecology</p> <p><b>Chair:</b> Francisco Martinez Capel, Universitat Politècnica de València, Spain</p>

## Session List

Session ID	Contents
<b>Session 2-1 (S2-1)</b>	<b>Title:</b> Sediment-Ecology Interaction <b>Chair:</b> Xiongdong Zhou, Tsinghua University, China
<b>Session 2-2 (S2-2)</b>	<b>Title:</b> Land Surface Process and Environmental Changes (1) <b>Chair:</b> Ruiyu Wang, Tsinghua University, China
<b>Session 2-3 (S2-3)</b>	<b>Title:</b> Land Surface Process and Environmental Changes (2) <b>Chair:</b> Qing Feng, Yellow River Institute of Hydraulic Research, China
<b>Session 2-4 (S2-4)</b>	<b>Title:</b> Special Session on Ecohydraulics of Hyporheic Zone in River, Estuarine and Coastal Sediments (1) <b>Conveners:</b> Alessandra Marzadri, University of Trento, Italy; James Stegen, Pacific Northwest National Laboratory, USA; Xiaobing Chen, Hohai University, China; Daniele Tonina, University of Idaho, USA
<b>Session 2-5 (S2-5)</b>	<b>Title:</b> Special Session on Ecohydraulics of Hyporheic Zone in River, Estuarine and Coastal Sediments (2) <b>Conveners:</b> Alessandra Marzadri, University of Trento, Italy; James Stegen, Pacific Northwest National Laboratory, USA; Xiaobing Chen, Hohai University, China; Daniele Tonina, University of Idaho, USA
<b>Session 2-6 (S2-6)</b>	<b>Title:</b> Effect of Organism on Flow (1) <b>Chair:</b> Yi Rong, The Hong Kong Polytechnic University, China; Yao Yang, Tsinghua University, China
<b>Session 2-7 (S2-7)</b>	<b>Title:</b> Effect of Organism on Flow (2) <b>Chair:</b> Zhan Hu, Sun Yat-Sen University, China
<b>Session 2-8 (S2-8)</b>	<b>Title:</b> Special Session on Ecohydraulics of Hyporheic Zone in River, Estuarine and Coastal Sediments (3) <b>Conveners:</b> Alessandra Marzadri, University of Trento, Italy; James Stegen, Pacific Northwest National Laboratory, USA; Xiaobing Chen, Hohai University, China; Daniele Tonina, University of Idaho, USA
<b>Session 2-9 (S2-9)</b>	<b>Title:</b> Plastic Particles <b>Chair:</b> Xinjie Wang, Beijing Normal University, China

## Session List

Session ID	Contents
<b>Session 3-1 (S3-1)</b>	<b>Title:</b> Effect of Flow Condition on Organism <b>Chair:</b> Yujun Yi, Beijing Normal University, China
<b>Session 3-2 (S3-2)</b>	<b>Title:</b> Fish Passage (1) <b>Chair:</b> Jeffrey Tuhtan, Tallinn University of Technology, Estland
<b>Session 3-3 (S3-3)</b>	<b>Title:</b> Turbulence-Organism Interaction <b>Chair:</b> Rafael Tinoco, University of Illinois At Urbana Champaign, USA
<b>Session 3-4 (S3-4)</b>	<b>Title:</b> Fish Passage (2) <b>Chair:</b> Paul Franklin, National Institute of Water and Atmospheric Research, New Zealand
<b>Session 3-5 (S3-5)</b>	<b>Title:</b> Fish Passage (3) <b>Chair:</b> Andreas Brandl, University of Natural Resources and Life Sciences, Austria; Saiyu Yuan, Hohai University, China
<b>Session 3-6 (S3-6)</b>	<b>Title:</b> Special Session on Physical, Chemical, and Biological Aspects of Transport Processes in Aquatic Ecosystems (1) <b>Conveners:</b> Zi Wu, Tsinghua University, Beijing, China; Marwan Hassan, The University of British Columbia, Vancouver, Canada; Li Zeng, China Institute of Water Resources and Hydropower Research, Beijing, China; Ping Wang, Beijing Forestry University, Beijing, China
<b>Session 3-7 (S3-7)</b>	<b>Title:</b> Special Session on Physical, Chemical, and Biological Aspects of Transport Processes in Aquatic Ecosystems (2) <b>Conveners:</b> Zi Wu, Tsinghua University, Beijing, China; Marwan Hassan, The University of British Columbia, Vancouver, Canada; Li Zeng, China Institute of Water Resources and Hydropower Research, Beijing, China; Ping Wang, Beijing Forestry University, Beijing, China
<b>Session 3-8 (S3-8)</b>	<b>Title:</b> Special Session on Physical, Chemical, and Biological Aspects of Transport Processes in Aquatic Ecosystems (3) <b>Conveners:</b> Zi Wu, Tsinghua University, Beijing, China; Marwan Hassan, The University of British Columbia, Vancouver, Canada; Li Zeng, China Institute of Water Resources and Hydropower Research, Beijing, China; Ping Wang, Beijing Forestry University, Beijing, China
<b>Session 3-9 (S3-9)</b>	<b>Title:</b> Fish Passage (4) <b>Chair:</b> Marie Pierre Gosselin, Norwegian Institute for Nature Research, Norway



## Session List

Session ID	Contents
<b>Session 4-1 (S4-1)</b>	<b>Title:</b> Management and Restoration of River Channel and Riparian Zone (1) <b>Chair:</b> Giuseppe Francesco Cesare Lama, University of Napoli Federico II, Italy
<b>Session 4-2 (S4-2)</b>	<b>Title:</b> Management and Restoration of River Channel and Riparian Zone (2) <b>Chair:</b> Paolo Vezza, Politecnico di Torino, Italy; Yuqing Lin, Nanjing Hydraulic Research Institute, China
<b>Session 4-3 (S4-3)</b>	<b>Title:</b> Wetland Management and Restoration <b>Chair:</b> Shan He, Changjiang River Scientific Research Institute, China
<b>Session 4-4 (S4-4)</b>	<b>Title:</b> Sustainable Design in Ecohydraulics <b>Chair:</b> Gregory Pasternack, University of California, U.S.A.
<b>Session 4-5 (S4-5)</b>	<b>Title:</b> Aquatic Ecology and Water Health (1) <b>Chair:</b> Jiahao Zhang, Tsinghua University, China
<b>Session 4-6 (S4-6 )</b>	<b>Title:</b> Coastal and Estuarine Ecohydraulics <b>Chair:</b> Yue Zhu, University of Nottingham Ningbo, China
<b>Session 4-7 (S4-7)</b>	<b>Title:</b> Aquatic Ecology and Water Health (2) <b>Chair:</b> Hamed Khorasani, University of Buffalo, U.S.A.
<b>Session 4-8 (S4-8)</b>	<b>Title:</b> Eco-Environmental Impact of High Dam and Large Reservoir <b>Chair:</b> Martin Hunt, Manitoba Hydro-Electric Board, Canada
<b>Session 4-9 (S4-9)</b>	<b>Title:</b> Risk Reduction in Ecosystem <b>Chair:</b> Kazuaki Ohtsuki, University of Yamanashi, Japan
<b>Session 4-10 (S4-10)</b>	<b>Title:</b> Eco-Environmental Impact of Human Activities <b>Chair:</b> Na Zhao, Henan University of Science and Technology, China

## Session List

Session ID	Contents
<b>Session 5-1 (S5-1)</b>	<b>Title:</b> Remote Sensing <b>Chair:</b> Frederic de Schaetzen, ETH Zürich, Switzerland
<b>Session 5-2 (S5-2)</b>	<b>Title:</b> Ecohydraulics Modelling on Various Scales <b>Chair:</b> Matthias Schneider, SJE Ecohydraulic Engineering GmbH, Germany; Yaqi Luo, Tsinghua University, China
<b>Session 5-3 (S5-3)</b>	<b>Title:</b> Genomics and Bioinformatics <b>Chair:</b> Sakiko Yaegashi, University of Yamanashi, Japan
<b>Session 5-4 (S5-4)</b>	<b>Title:</b> Experimental Ecohydraulics (1) <b>Chair:</b> Ingo Schnauder, Technische Universität Wien, Austria
<b>Session 5-5 (S5-5)</b>	<b>Title:</b> Experimental Ecohydraulics (2) <b>Chair:</b> Katharina Bensing, Technical University of Darmstadt, Germany
<b>Session 5-6 (S5-6)</b>	<b>Title:</b> Habitat Modelling of Concerned Species <b>Chair:</b> Hannah Schwedhelm, Technical University Munich, Germany; Chubin Weng, Tsinghua University, China
<b>Session 5-7 (S5-7)</b>	<b>Title:</b> Novel Software Applied in Ecohydraulics <b>Chair:</b> Araceli Martín Candilejo, Polytechnical University of Madrid, Spain
<b>Session 5-8 (S5-8)</b>	<b>Title:</b> Data-driven and Knowledge Based Modelling <b>Chair:</b> Richard Hedger, Norwegian Institute for Nature Research, Norway; Saiyu Yuan, Hohai University, China

## Oral Presentation –Oct. 11<sup>th</sup>

<b>Session Name</b>	<b>S1-1: Special Session on Integrating Ecohydraulics and Ecohydrology in Environmental Flow Assessment and implementation (1)</b>
<b>Conveners</b>	<b>Francisco Martinez-Capel, Shinji Fukuda, Michael McClain, Daniele Tonina</b>

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
15:00	S1-1-1	Habitat suitability-based effective number as a tool for assessing fish species diversity	Akihiro Tanaka
15:15	S1-1-2	2D hydrodynamic modeling for fish habitat assessment of two competing freshwater fish in the Yagawa River	Takahiko Kawasaki
15:30	S1-1-3	Development of a population dynamics model for dark chub ( <i>candidia temminckii</i> ) in a small spring-fed river using habitat suitability	Taichi Jibiki
15:45	S1-1-4	Defining environmental flows for India using the habitat simulation model, MesoHABSIM	Piotr Parasiewicz

### **Session Name S1-2: Environmental Flow (1)**

**Chair Silvia Quadroni**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
17:00	S1-2-1	Evaluation of future climate and potential impact on streamflow in the upper Oti River Basin of northern Togo	Batablinlè Lamboni
17:15	S1-2-2	Development of scientific approaches for environment flows assessment in Ukraine	Viacheslav Manukalo
17:30	S1-2-3	Towards an upgrading of minimum flows: the ecological effects of summer low flows in a regulated lowland river	Silvia Quadroni
17:45	S1-2-4	Hydrodynamic preferences of Chinese sturgeon in the spawning sites of Yangtze River: effects of in-stream hydraulic structures	Xuan Ban

## Oral Presentation –Oct. 11<sup>th</sup>

<b>Session Name</b>	<b>S1-3: Special Session on Integrating Ecohydraulics and Ecohydrology in Environmental Flow Assessment and implementation (2)</b>
<b>Conveners</b>	<b>Francisco Martinez-Capel, Shinji Fukuda, Michael McClain, Daniele Tonina</b>

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
22:00	S1-3-1	Integrated modelling and monitoring of e-flows regulation in a Swiss Alpine river	Caponi Francesco
22:15	S1-3-2	Flood events as restoration tools	Jhoselyn Milagros Aramburu Pauca
22:30	S1-3-3	IHA analyzes and environmental flow in the upper Paraná fluvial macrosystem (PR-MS-Brazil)	Jose Antonio Arenas Ibarra
22:45	S1-3-4	Environmental flow regime prescription transfer along a river basin	Rui Rivaes

<b>Session Name</b>	<b>S2-1: Sediment-ecology Interaction</b>
<b>Chair</b>	<b>Xiongdong Zhou</b>

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
15:00	S2-1-1	The impact of land reclamation on ecosystem under a highly energetic coastal circulation with massive macro-vortices	Chang He
15:15	S2-1-2	Impact of hydropeaking on spawning substrate of fish	Ishwar Joshi
15:30	S2-1-3	Impacts of environmental factors on dynamics of particulate organic carbon adsorption on sediments	Yuyang Wu
15:45	S2-1-4	Effects of bottom shear stress on sediment resuspension and concomitant diffusion of nitrogen and phosphorus: a case study of Chaohu Lake	Lei Wu

## Oral Presentation –Oct. 11<sup>th</sup>

<b>Session Name</b>	<b>S2-2: Land Surface Process and Environmental Changes (1)</b>
<b>Chair</b>	<b>Ruiyu Wang</b>

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
16:00	S2-2-1	Preliminary theoretical analysis of morphologic features of alpine glaciers and ice caps	Ruiyu Wang
16:15	S2-2-2	Recurrence of flood and sediment yield of historical heavy rain on underlying surface in different periods	Wenxing Lv
16:30	S2-2-3	Carbon export from permafrost catchments of the Qinghai-Tibet Plateau	Chunlin Song
16:45	S2-2-4	Effects of hydrological processes on surface and subsurface nitrogen losses from purple soil slopes	Meixiang Xie

<b>Session Name</b>	<b>S3-1: Effect of Flow Condition on Organism</b>
<b>Chair</b>	<b>Yujun Yi</b>

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
15:00	S3-1-1	Benchmarking 3D CFD for studies on turbulent flow around fish shaped bodies	Ali Hassan Khan
15:15	S3-1-2	Negative effects of parasite exposure and variable thermal stress on brown trout ( <i>Salmo trutta</i> ) under future climatic and hydropower production scenarios	Roser Casas-Mulet
15:30	S3-1-3	Movement behavior during simulated hydropeaking - an imaging-based tracking approach	Robert Naudascher
15:45	S3-1-4	Development of PIV-based techniques for measurements of instantaneous drag and fish-flow energy exchanges	Miriam Castagna
16:00	S3-1-5	Investigation on the impact of underwater noise from ships in the upper Yangtze River	Zonglin Lei



**Session Name S3-2: Fish Passage (1)**

**Chair Jeffrey Tuhtan**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
17:00	S3-2-1	Smart fish counter for monitoring species, size, migration behaviour and environmental conditions	Jeffrey Tuhtan
17:15	S3-2-2	Fish swimming performance: effect of flume length and different fatigue definitions	Muhammad Usama Ashraf
17:30	S3-2-3	The RETERO project: 3R motivated risk assessment methods for downstream fish passage through hydraulic structures	Stefan Hoerner
17:45	S3-2-4	Experimental study of turbulent flow in a vertical double slot fishway: influence of flow discharge and slope	Anne Fleur Lejeune

**Session Name S4-1: Management and Restoration of River Channel and Riparian Zone (1)**

**Chair Giuseppe Francesco Cesare Lama**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
15:00	S4-1-1	Restoration of channel meandering using current deflectors	Yuan Pi
15:15	S4-1-2	Research on natural fish habitat restoration techniques in pool-riffles	Huan Lin
15:30	S4-1-3	Evaluating the effects of heat transfer in riparian vegetation canopy on vegetated flows' hydrodynamic	Giuseppe Francesco Cesare Lama
15:45	S4-1-4	Optimal regulation of river ecology based on coupling simulation of water quantity and water quality	Wenqi Wang
16:00	S4-1-5	Integration of environmental fluvial assessment with flooding analysis for restoration of urban rivers' systems	José-Luis Molina

## Oral Presentation –Oct. 11<sup>th</sup>

**Session Name**    **S4-2: Management and Restoration of River Channel and Riparian Zone (2)**

**Chair**                **Paolo Vezza, Yuqing Lin**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
17:00	S4-2-1	Extending meso-scale habitat models to temporary rivers: possible approaches and software applications	Paolo Vezza
17:15	S4-2-2	Morphological quality and macroinvertebrate diversity of the gravel-bed Shiting River Sichuan after the 2008 Wenchuan Earthquake	Songyi Li
17:30	S4-2-3	Quantity analysis the channel habitat quality using an ecohydraulic model	Yike Li
17:45	S4-2-4	What drives the plant distribution in the riparian zone of the Three Gorges Reservoir, China	Shanze Li
18:00	S4-2-5	Natural and artificial refugia in dynamic river widenings	Paul Demuth

**Session Name**    **S5-1: Remote Sensing**

**Chair**                **Frederic de Schaetzen**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
15:00	S5-1-1	Using Airborne LiDAR Bathymetry-aided transfer learning method in riverine land cover classification	Shijun Pan
15:15	S5-1-2	Using cameras to study drift patterns – RODI: Riverine Organism Drift Imager	Frederic de Schaetzen
15:30	S5-1-3	Preliminary application of instance segmentation for monitoring diurnal activity of freshwater fish	Wataru Ishikawa

---

**Session Name    S5-2: Ecohydraulics Modelling on Various Scales**

**Chair                Matthias Schneider, Yaqi Luo**

---

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
16:00	S5-2-1	Utilization of computational intelligence approaches to estimate the flow coefficient of labyrinth weir	Faris Belaabed
16:15	S5-2-2	Investigation of canoeing impact on fish by use of habitat modeling	Matthias Schneider
16:30	S5-2-3	Simulation of flow around collocated bridge piers with pile cap	Mohammad Tavakol Sadrabadi
16:45	S5-2-4	Study on water environment simulation and prediction in Sanhekou Reservoir area	Naihao Tan
17:00	S5-2-5	Hydraulic impact on fish migration in Sariakandhi Fish Pass of Bangladesh	Bijoy Kumar Ghosh

---

## Oral Presentation –Oct. 12<sup>th</sup>

**Session Name**    **S1-4: Special Session on Sustainability of Ecology and Hydrology of Floodplain Lake Systems of the Large River Basins under Rapidly Changing Climatic and Social Dimensions**

**Conveners**        **Giri R Kattel, Zhiguo Yu, Hong Yang**

Time	ID	Title	Presenter
10:00	S1-4-1	Responses of microbial communities to varying terminal electron acceptors in peatlands and the production of CH <sub>4</sub> and CO <sub>2</sub>	Sadaf Shabbir
10:15	S1-4-2	How resilient are waterways of Asian Himalayas? finding adaptive measures for future sustainability	Giri Kattel
10:30	S1-4-3	Resilience of lacustrine phytoplankton community to the short-term river-to-lake water diversion	Jiangyu Dai
10:45	S1-4-4	Floodplain reconnection for salmonid habitat restoration in California, USA	Mark Tompkins

**Session Name**    **S1-5: Environmental Flow (2)**

**Chair**                **Lotta Blaskovicova, Xiongdong Zhou**

Time	ID	Title	Presenter
15:00	S1-5-1	Environmental flow assessment for a green small hydropower plant using hydraulic-habitat modelling with a focus on the benthic macroinvertebrate community	Shuyi Hu
15:15	S1-5-2	How seasonal variation of streamflow affects aquatic macroinvertebrate communities	Wei Liu
15:30	S1-5-3	Low-flow data analysis as an input for e-flow limits selection in Slovakia	Lotta Blaskovicova
15:45	S1-5-4	Assessing environmental flow in a river basin of eastern India	Smaranika Mahapatra

## Oral Presentation –Oct. 12<sup>th</sup>

<b>Session Name</b>		<b>S1-6: Hydropeaking</b>	
<b>Chair</b>		<b>Daniel Hayes</b>	
<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
16:00	S1-6-1	Fish Escaping Routes – FiER: Modelling escaping routes for fish larvae under rapid flow changes during hydropeaking	Luiz G M Silva
16:15	S1-6-2	Effects of artificial flow reduction on stranding of larval nase ( <i>Chondrostoma nasus</i> L.) under experimental conditions	Simon Fuehrer
16:30	S1-6-3	Application of the Building Block Approach to generating a natural flow regime in a regulated river	Sung-Uk Choi
16:45	S1-6-4	Hydropeaking in Himalayan Rivers associated effect on aquatic life, flood management and sediment transport	Siba Sen
17:00	S1-6-5	Ecohydraulic experiments with cyprinid larvae in a nature-like outdoor facility – first insights from hydropeaking trials to quantify fish stranding at different gravel bar setups	Daniel Hayes

<b>Session Name</b>		<b>S1-7: Special Session on Hydrological Connectivity of River Ecosystems</b>	
<b>Conveners:</b>		<b>Shanghong Zhang, Silke Wieprecht, Yujun Yi, Sebastian Schwindt, Jin Zhang</b>	
<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
22:00	S1-7-1	New methods for connectivity assessments of river ecosystems	Sebastian Schwindt
22:15	S1-7-2	How meander cutoff reshapes the trophic characteristics of macroinvertebrates in the upper Yellow River Basin	Xiongdong Zhou
22:30	S1-7-3	How a barrage and spur dikes affect <i>megalobrama terminalis</i> spawning sites at the Beijiang River (China)	Xiyan Yang
22:45	S1-7-4	Hydrological connectivity promotes coalescence of bacterial communities in a floodplain	Baozhu Pan
23:00	S1-7-5	Hydrological connectivity in the upper Parana fluvial macrosystem: Influence of upstream dams (1964-2019)	Jose Antonio Arenas Ibarra



## Oral Presentation –Oct. 12<sup>th</sup>

**Session Name**    **S2-3: Land Surface Process and Environmental Changes (2)**

**Chair**                **Qing Feng**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
10:00	S2-3-1	Modeling the influence of sea level rise on the turbidity maximum of the Qiantang Estuary	Dongfeng Xie
10:15	S2-3-2	A review of sediment reduction benefits of soil and water conservation measures in China	Jingjing Xu
10:30	S2-3-3	Experimental study on the maximum possible scouring depth in Baotou reach of the Yellow River	Qing Feng

**Session Name**    **S2-4: Special Session on Ecohydraulics of Hyporheic Zone in River, Estuarine and Coastal Sediments (1)**

**Conveners**        **Alessandra Marzadri, James Stegen, Xiaobing Chen, Daniele Tonina**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
11:00	S2-4-1	Characteristic of groundwater-surface water interaction and function degradation of hyporheic zone in karst springs	Fang Guo
11:15	S2-4-2	Nitrous oxide emissions under low flow conditions in streams	Daniele Tonina
11:30	S2-4-3	Determination of the streambed hydraulic conductivity across an entire stream network	Jie Yin
11:45	S2-4-4	Impacts of drying on hyporheic zone biogeochemistry	James Stegen

## Oral Presentation –Oct. 12<sup>th</sup>

<b>Session Name</b>	<b>S2-5: Special Session on Ecohydraulics of Hyporheic Zone in River, Estuarine and Coastal Sediments (2)</b>
<b>Conveners</b>	<b>Alessandra Marzadri, James Stegen, Xiaobing Chen, Daniele Tonina</b>

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
15:00	S2-5-1	Effect of vegetation cover on hyporheic velocity and phosphorus removal in a pool-riffle sequence	Fazele Kabiri
15:15	S2-5-2	Effect of bank slope and ambient groundwater discharge on hyporheic transport and biogeochemical reactions in a compound channel	Jiaming Liu
15:30	S2-5-3	Numerical modeling of hyporheic exchange induced by submerged rigid vegetation	Xiaobing Chen
15:45	S2-5-4	The role of hyporheic processes on climate change	Alessandra Marzadri

<b>Session Name</b>	<b>S2-6: Effect of Organism on Flow (1)</b>
---------------------	---

<b>Chair</b>	<b>Yi Rong, Yao Yang</b>
--------------	--------------------------

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
16:00	S2-6-1	On the initiation and evolution of von Karman vortex behind rectangular vegetation canopies with different aspect ratios and densities	Yuanheng Zhang
16:15	S2-6-2	Effects of riparian plant roots on bank erosion process of Tarim River based on BSTEM model	Ruize Tang
16:30	S2-6-3	Effect of vegetation on mass transport in compound channels	Yi Rong
16:45	S2-6-4	Diffusion characteristic of floating particles in vegetated open channel flow	Xiaoguang Liu

---

**Session Name**    **S3-3: Turbulence-Organism Interaction**

**Chair**                **Rafael Tinoco**

---

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
10:00	S3-3-1	Variations in turbulence integral scales around instream boulders and implications for fish habitat	Amir Golpira
10:15	S3-3-2	Experimental investigation of turbulent characteristics in hydraulic jump with vegetated bottom	Rongfu Ning
10:30	S3-3-3	Characterizing surface gas transfer driven by turbulence from submerged vegetation-wave interactions	Rafael Tinoco

---

---

**Session Name**    **S3-4: Fish Passage (2)**

**Chair**                **Paul Franklin**

---

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
11:00	S3-4-1	Monitoring of fish passage built in the Rivers of Nepal: A case study of Andhi Khola Project	Kamal Prasad Pandey
11:15	S3-4-2	Actions to restore fish passage in New Zealand: From science to policy and back again	Paul Franklin
11:30	S3-4-3	Optimising spoiler baffle arrangement for promoting small-bodied fish passage through culverts	Dipendra Magaju
11:45	S3-4-4	YOLOv5 analysis for juvenile Ayu detection in underwater images of fishway	Shijun Pan

---

## Oral Presentation –Oct. 12<sup>th</sup>

**Session Name**    **S3-5: Fish Passage (3)**

**Chair**                    **Andreas Brandl, Saiyu Yuan**

Time	ID	Title	Presenter
16:00	S3-5-1	Smart Fishways: sensorization of fishways for autonomous assessment and management of their performance	Juan Francesco Fuentes- Perez
16:15	S3-5-2	Schooling behaviour of <i>telestes muticellus</i> under different flow velocities	Gloria Mozzi
16:30	S3-5-3	Turbulent eddies as potential migration obstacles in fishway constructions	Marcio Roth
16:45	S3-5-4	Evaluation of key stimuli, in particular light, acoustics and temperature, influencing fish migration into fishpasses	Andreas Brandl

**Session Name**    **S4-3: Wetland Management and Restoration**

**Chair**                    **Shan He**

Time	ID	Title	Presenter
10:00	S4-3-1	Post-processing of reservoir releases to support real-time reservoir operation and its effects on downstream hydrological alterations	Shan He
10:15	S4-3-2	Application for technology of ecological interception pre-reservoir in the confluence of river and lake	Yimin Zhang
10:30	S4-3-3	Characterization of the hydrogeological behavior of high andean peatlands – three case studies in the Bolivian Altiplano	Hugo Soliz Flores
10:45	S4-3-4	The effects of anthropogenic structures on the ecohydraulic characteristics for <i>mortonagrion hirosei</i> habitating in estuarine wetland	Gwown Hwang

## Oral Presentation –Oct. 12<sup>th</sup>

**Session Name S4-4: Sustainable Design in Ecohydraulics**

**Chair Gregory Pasternack**

Time	ID	Title	Presenter
11:00	S4-4-1	Assessment of sustainable design of Shafique Haor and Sonamoral Haor wetlands FCD/FCDI project against flash flood in greater Sylhet area	Rifat Jahan
11:15	S4-4-2	From reservoir greenhouse gas emissions to hydropower carbon footprint: methodology, and advances	Zhe Li
11:30	S4-4-3	River Architect: baseline-condition and alternative-design assessment software to promote sustainability of eco-physical river systems	Gregory Pasternack
11:45	S4-4-4	Green infrastructures performance evaluation towards management of water quality: a case study	Qian Yu

**Session Name S4-5: Aquatic Ecology and Water Health (1)**

**Chair Jiahao Zhang**

Time	ID	Title	Presenter
15:00	S4-5-1	Seasonal pattern of zooplankton communities and the effect of hydraulic regulation on zooplankton biomass in the regulating lake of the South-to-North Water Diversion Project	Ruolan Yu
15:15	S4-5-2	Water diversion not to blame for phosphorus enrichment in Taihu Lake	Zhiyuan Wang
15:30	S4-5-3	Characterization and sources apportionment of overflow pollution in urban separate stormwater systems inappropriately connected with sewage	Yuxuan Zhou
15:45	S4-5-4	Multiphase distribution of perfluorinated acids in a plain river network and their removal by submerged macrophytes	Xiaoqing Li



## Oral Presentation –Oct. 12<sup>th</sup>

---

**Session Name S4-6: Coastal and Estuarine Ecohydraulics****Chair Yue Zhu**

---

Time	ID	Title	Presenter
16:00	S4-6-1	Hydrodynamic and water quality modeling of coastal water based on Delft3D model	Yue Zhu
16:15	S4-6-2	Impact of seasonality runoff variations on tidal current limit in the lower Yangtze River	Qiancheng Xie
16:30	S4-6-3	Velocity profile formula based on wave-induced multi-source oscillatory energy propagation mode	Qianlu Xiao
16:45	S4-6-4	The role of wave-induced drift in seed dispersal	Junqing Ren

---

---

**Session Name S5-3: Genomics and Bioinformatics****Chair Sakiko Yaegashi**

---

Time	ID	Title	Presenter
10:00	S5-3-1	Challenges of monitoring invasive mussels with environmental DNA	Yao Yang
10:15	S5-3-2	Investigating the fish diversity in the upper reaches of Yangtze River based by environment DNA metabarcoding	Li Wang
10:30	S5-3-3	Investigation of a method for surveying aquatic insects using DNA barcoding of environmental DNA	Sakiko Yaegashi
10:45	S5-3-4	A proposal for a method for evaluating the ecological benefits of green infrastructure as Eco-DRR using environmental DNA	Noriko Uchida

---

## Oral Presentation –Oct. 12<sup>th</sup>

---

**Session Name**    **S5-4: Experimental Ecohydraulics (1)**

**Chair**                **Ingo Schnauder**

---

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
15:00	S5-4-1	Flow and morphology around trees installed in rivers: do we need a stem attached?	Ingo Schnauder
15:15	S5-4-2	Apply novel optical and acoustic instruments for long-term and high-frequency morphodynamics observation on a mangrove tidal flat	Tianping Xu
15:30	S5-4-3	Impact of Shishamo spawning sites in Azuma river, Hokkaido under the various flow and high concentration silt conditions	Tomoko Kyuka
15:45	S5-4-4	Study on flow sensors arrangement optimization based on the mobile flow measuring devices	Yi Zhou

---

---

**Session Name**    **S5-5: Experimental Ecohydraulics (2)**

**Chair**                **Katharina Bensing**

---

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
16:00	S5-5-1	Experimental study on turbulent characteristics of flow around a t-shaped spur dike in bend	Liyuan Zhang
16:15	S5-5-2	Experimental study on flow characteristics in a bend with multistage spur dike	Haonan Zhang
16:30	S5-5-3	Application of a fish-shaped probe at an angled rack: introducing the fish sensory sonde (FSS)	Katharina Bensing
16:45	S5-5-4	Shallow flow field induced by large horizontal coherent structures in squeeze ecological systems	S.H Truong

---

## Oral Presentation –Oct. 12<sup>th</sup>

---

**Session Name**    **S5-6: Habitat Modelling of Concerned Species**

**Chair**                    **Hannah Schwedhelm, Chubin Weng**

---

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
17:00	S5-6-1	Resources management strategy of <i>gymnocypris przewalskii</i> (naked carp) in Qinghai Lake based on matrix population model	Chubin Weng
17:15	S5-6-2	Spatial and temporal change in the epilithic community in the Shiting River in Sichuan Province, China	Min Liu
17:30	S5-6-3	Meso or Micro : A comparative analysis of two habitat modelling approaches	Hannah Schwedhelm
17:45	S5-6-4	Using soil hydraulic properties for an efficient starch potato irrigation management	Jan Lukas Wenzel

---

## Session Name S1-8: Effect of Climate Change on Ecology

Chair Francisco Martinez Capel

Time	ID	Title	Presenter
15:00	S1-8-1	Climate change adaptation in a Mediterranean river basin based on eco-engineering decision scaling	Francisco Martinez Capel
15:15	S1-8-2	The hydraulic habitat suitability of the Ganga River dolphin under anthropogenic influence	Gaurav Sonkar
15:30	S1-8-3	Modeling the climate change effects on habitat availability in Alpine watercourses	Gianluca Filippa
15:45	S1-8-4	Drought impacts on water use and quality: a challenge for potable and irrigation water in the summer of 2022	Elena Carcano

## Session Name S2-7: Effect of Organism on Flow (2)

Chair Zhan Hu

Time	ID	Title	Presenter
10:00	S2-7-1	Flow resistance caused by golden mussel ( <i>limnoperna fortunei</i> ) biofouling in East River Water Source Project	Jiahao Zhang
10:15	S2-7-2	Indirect wave dissipation mechanism in submerged vegetation canopies with accompanying currents	Zhan Hu
10:30	S2-7-3	Vegetation deformation under the action of open channel flow	Jiangyu Wang
10:45	S2-7-4	Influence of riparian emergent rigid vegetation on hydrodynamic characteristics of compound channel	Youzhi Hao
11:00	S2-7-5	Application of foliar hydrogen peroxide concentration as an environmental stress indicator to evaluate the plant species distribution in the riparian zone	Takashi Asaeda

## Oral Presentation –Oct. 13<sup>th</sup>

**Session Name** S2-8: Special Session on Ecohydraulics of Hyporheic Zone in River, Estuarine and Coastal Sediments (3)

**Conveners:** Alessandra Marzadri, James Stegen, Xiaobing Chen, Daniele Tonina

Time	ID	Title	Presenter
15:00	S2-8-1	Lateral carbon transport during surface water-groundwater interaction at an onshore aquacultural farm	Xuan Yu
15:15	S2-8-2	Riverine groundwater discharge estimation in a dynamic river corridor using <sup>222</sup> Rn	Fu Liao
15:30	S2-8-3	Solute transport in the hyporheic zone	Ekkehard Holzbecher
15:45	S2-8-4	Microbial community structure and antibiotic resistance genes distribution in the hyporheic zone of effluent-receiving rivers	Yina Zhou

**Session Name** S2-9: Plastic Particles

**Chair** Xinjie Wang

Time	ID	Title	Presenter
16:00	S2-9-1	Effect mechanism of suspended sediment on the settling of plastic particles in natural waters	Xinjie Wang
16:15	S2-9-2	Laboratory analysis of plastic particle transport in vegetated patches	Daniele Martuscelli
16:30	S2-9-3	Macroplastics mobility into hyporheic zone: preliminary laboratory experiments	Mirco Mancini



## Oral Presentation –Oct. 13<sup>th</sup>

**Session Name**    **S3-6: Special Session on Physical, Chemical, and Biological Aspects of Transport Processes in Aquatic Ecosystems (1)**

**Conveners**        **Zi Wu, Marwan Hassan, Li Zeng, Ping Wang**

Time	ID	Title	Presenter
10:00	S3-6-1	Bio-mineral flocculation of fine-grained cohesive sediments and microalgae in estuaries	Xiaoteng Shen
10:15	S3-6-2	Land-to-Ocean flux of water, sediment and nutrients in the Changjiang River continuum	Leicheng Guo
10:30	S3-6-3	Environmental transport of gyrotactic microorganisms in an open-channel flow	Guangmiao Li
10:45	S3-6-4	Biofilms as the "ecosystem engineers": the microbiological mediation of intertidal sediment behavior	Xindi Chen

**Session Name**    **S3-7: Special Session on Physical, Chemical, and Biological Aspects of Transport Processes in Aquatic Ecosystems (2)**

**Conveners**        **Zi Wu, Marwan Hassan, Li Zeng, Ping Wang**

Time	ID	Title	Presenter
11:00	S3-7-1	Simulating the fate of faecal bacteria in estuarine and coastal waters based on a fractionated sediment transport model	Chen Yang
11:15	S3-7-2	Optical and molecular signatures of sedimentary organic matter in the Three Gorges Reservoir: Spatial dynamics and carbon cycling implications	Kai Wang
11:30	S3-7-3	Modeling velocity and shear stress profiles for the ecological channel with floating vegetation	Jiao Zhang

## Oral Presentation –Oct. 13<sup>th</sup>

**Session Name**    **S3-8: Special Session on Physical, Chemical, and Biological Aspects of Transport Processes in Aquatic Ecosystems (3)**

**Conveners**        **Zi Wu; Marwan Hassan; Li Zeng; Ping Wang**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
15:00	S3-8-1	Numerical modelling for coastal waters and large shallow lakes using FVCOM	Tao Feng
15:15	S3-8-2	Laboratory experiments on rheological effects of exopolymers on particle sinking in seawater	Magdalena Mrokowska
15:30	S3-8-3	Comparison of absorption capacity through open channels with different irreversible-boundary types	Huilin Wang
15:45	S3-8-4	Vegetation-driven drag variation and sediment transport in shallow nonuniform flow	Yonggang Zhang

**Session Name**    **S3-9: Fish Passage (4)**

**Chair**              **Marie Pierre Gosselin**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
16:00	S3-9-1	An experimental study of the behavioral response of fish to flow changes in a near-natural environment	Han Liu
16:15	S3-9-2	Numerical simulation of a slanted fishway with protruding boulders	Dian Luo
16:30	S3-9-3	A novel approach to mitigate fish downstream migration at hydropower plants	Franz Geiger
16:45	S3-9-4	Impact of cascade dams on fish habitats and alleviation measures in upper Yangtze River	Yuqing Lin

## Oral Presentation –Oct. 13<sup>th</sup>

### Session Name **S4-7: Aquatic Ecology and Water Health (2)**

**Chair** **Hamed Khorasani**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
10:00	S4-7-1	Combination of logistic and modified monod functions to study <i>microcystis aeruginosa</i> growth stimulated by fish feed	Suiliang Huang
10:15	S4-7-2	Modeling harmful algal blooms in Lake Ontario by inclusion of algal ecology and nutrient dynamics	Hamed Khorasani
10:30	S4-7-3	Study on meticulous management targets for water health of typical mountainous river basin based on classification of water bodies	Xiaogang Tian
10:45	S4-7-4	Zooplankton module indicates top-down effects on eutrophication: Implications for lake restoration by biomanipulation	Yuhong Zhou

### Session Name **S4-8: Eco-Environmental Impact of High Dam and Large Reservoir**

**Chair** **Martin Hunt**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
11:00	S4-8-1	Impact of hydropower development on fish habitat in the lower Yalutsangpo River	Yaqi Luo
11:15	S4-8-2	River water temperature forecasting using a deep learning method	Yuankun Wang
11:30	S4-8-3	Keeyask generation project aquatic mitigation and offsetting - planning to construction	Martin Hunt
11:45	S4-8-4	Reservoirs change downstream water quality and pCO <sub>2</sub> : a case study in reservoirs of the Seine Basin (France)	Xingcheng Yan

## Oral Presentation –Oct. 13<sup>th</sup>

### Session Name **S4-9: Risk Reduction in Ecosystem**

**Chair** **Kazuaki Ohtsuki**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
15:00	S4-9-1	Occurrence, distribution and ecological risk of antibiotics in wastewater treatment plants around Luoma Lake, China	Yuanyuan Liu
15:15	S4-9-2	Experimental study on transportation and accumulation of driftwoods during a large flood	Shingo Otaka
15:30	S4-9-3	Evaluation of the impact of drainage channel improvement associated with agricultural land development on flood flow in the small valley wetland (Yatsu) landscape	Kazuaki Ohtsuki
15:45	S4-9-4	Ecological risk assessment of toxic metals in water of Perai river, Malaysia	Muhammad Fitri Mohd Akhir

### Session Name **S4-10: Eco-Environmental Impact of Human Activities**

**Chair** **Na Zhao**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
16:00	S4-10-1	Current situation and Countermeasures of water ecological environment protection in Sichuan Province	Sulan Zhang
16:15	S4-10-2	Perfluoroalkyl acids (PFAAs) in the tailwater of the waste water treatment plants (WWTPs) around a shallow lake: distribution, removal, and fluxes	Ying Lu
16:30	S4-10-3	Variation of phosphorus inflow to the Three Gorges Reservoir: Impact of human activities	Shiyao Zhang
16:45	S4-10-4	Effects of land use on benthic invertebrate communities in the Yiluo River Basin	Na Zhao

**Session Name**    **S5-7: Novel Software Applied in Ecohydraulics**

**Chair**                **Araceli Martín Candilejo**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
15:00	S5-7-1	Application of the Convex Hyperbola Charts to minimise the energy consumption of a pumping station in a real case in Spain	Araceli Martín Candilejo
15:15	S5-7-3	Concurring indications of HSI and HMID for assessing the success of river restoration actions	Maximilian Kunz
15:30	S5-7-4	Towards understanding fish behavior near an angled rack: an approach for fish tracing using open-source software	Ianina Kopecki

**Session Name**    **S5-8: Data-driven and knowledge based modelling**

**Chair**                **Richard Hedger, Saiyu Yuan**

<b>Time</b>	<b>ID</b>	<b>Title</b>	<b>Presenter</b>
15:45	S5-8-1	An improved deep learning model for suspended sediment forecast	Shicheng Li
16:00	S5-8-2	An evaluation of small river restoration using transient river habitat modelling for macrozoobenthos	Sengdavanh Thepphachanh
16:15	S5-8-3	Development of a real-time bird species identification algorithm using deep learning	Takuma Nishimura
16:30	S5-8-4	Forecast of chlorophyll-a concentration based on time series decomposition and deep learning over eutrophic lakes	Cheng Chen
16:45	S5-8-5	River mesohabitat classification from aerial photographs using deep learning	Richard Hedger