



RIVER CONSERVATION UNDER WATER SCARCITY

Integration of water quantity and quality in
Iberian Rivers under global change

20-21 October 2014
Tarragona, Spain



ORGANIZERS

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SCARCE is a multipurpose project that aims to describe and predict the relevance of global change impacts on water availability, water quality and ecosystem services in Mediterranean river basins of the Iberian Peninsula, as well as their impacts on the human society and economy. The project has assembled a multidisciplinary team of leading scientists in the fields of hydrology, geomorphology, chemistry, ecology, ecotoxicology, economy, engineering and modelling, in an unknown effort in the CONSOLIDER framework. The topics of the Final SCARCE International Conference are:

- Integrating the effects of chemical quality with environmental stressors on biodiversity and human risks
- Linking chemical exposure and biological effects
- Integrated assessment of water quantity and quality and Global Change
- Integrating results to predict global change impacts on freshwater ecosystem services
- Global change and adaptation and mitigation measures
- Prediction of future threats and mitigation proposals in the light of the analysis of the economic and social impacts
- Water scarcity, freshwater ecosystem services and integration in RBMPs
- Integrating science and policy

Integration of water quantity and quality in Iberian Rivers under global change is a core element in this Conference. This SCARCE conference will provide a multidisciplinary framework for discussion of integration of basic research, like long-term patterns and mechanisms that operate in the hydrology, water quality, habitat dynamics, ecosystem structure and function of watersheds, and the effects of climate and global change on the ecosystem services they provide, with water management practices.

The Conference is planned in form of oral talks, posters and discussions, where experts from different fields can share their knowledge.

The conference invites to anyone working on water sustainability to share knowledge to face a changing world in water resources management.

The conference will be held at:

Aula Magna Campus Catalunya
Avinguda Catalunya, 35
43002 Tarragona

FINAL PROGRAMME

Monday, 20th October 2014

9.00 - 9.30 Registration

9.30 - 10.15 Welcome

Josep A. Ferré¹, Josep Poble Tous², Marina Villegas³, Marta Schuhmacher⁴
and Damià Barceló^{5,6}

¹Chancellor of the University Rovira i Virgili

²President of the Diputació de Tarragona

³Director of Research Projects, Ministry of Economy and Competitiveness, Government of Spain

⁴AGA research group, Departament d'Enginyeria Química, Universitat Rovira i Virgili, Tarragona, Spain

⁵Water and Soil Quality Research Group, IDAEA-CSIC, Barcelona, Spain

⁶Catalan Institute for Water Research (ICRA), Girona, Spain

Introduction to global change and water scarcity

Chairperson: Marta Schuhmacher

10.15 - 10.45 *Opportunities for research in water in H2020. Interactions with JPI Water*

Marina Villegas

Director of Research Projects, Ministry of Economy and Competitiveness, Government of Spain

10.45 - 11.30 SCARCE: Executive summary results and achievements Dec2009-Oct 2014

Damià Barceló^{1,2}

¹Water and Soil Quality Research Group, IDAEA-CSIC, Barcelona, Spain

²Catalan Institute for Water Research (ICRA), Girona, Spain

11.30 - 12.10 Poster session/Coffee break

Session I: Integrated assessment of water quantity and quality and Global Change

Chairperson: Ralf Ludwig

12.10 - 12.40 *Anthropogenic organic pollutants in riverine and coastal waters as indicators for local and regional scale climate change*

Roland Kallenborn

Department of Chemistry, Biotechnology and Food Sciences (IKBM), Norwegian University of Life Sciences (NMBU), Aas, Norway

12.40 - 13.10 *Climate change effects on seafood safety and physiology in contaminated environments*

Ana Luísa Maulvault¹, Ana Custódio¹, Patrícia Anacleto¹, Tiago Repolho², Maria Leonor Nunes¹, Rui Rosa² and António Marques¹

¹*Division of Aquaculture and Seafood Upgrading. Portuguese Institute for the Sea and Atmosphere, I.P. (IPMA), Lisbon, Portugal*

²*Guia Marine Laboratory, Center of Oceanography, University of Lisbon (FCUL), Lisbon, Portugal*

13.10 - 15.00 Lunch

Session II: Ecological stressors and hydrological and morphological changes

Chairperson: Teresa Ferreira

15.00 - 15.30 *Certainties and uncertainties in river discharge predictions over the Iberian Peninsula in the next decades*

Matteo Zampieri¹ and Silvio Gualdi^{1,2}

¹*EuroMediterranean Center for Climate Change (CMCC), Bologna, Italy*

²*Istituto Nazionale di Geofisica e Vulcanologia (INGV), Bologna, Italy*

15.30 - 15.50 *Effects of flow regulation on the Geomorphic Status of rivers in Spain*

Gemma Lobera¹, Pedro Besné², Damià Vericat^{1,3,4}, José Andrés López-Tarazón^{1,5}, Alvaro Tena¹, Ibon Aristi⁶, José Ramón Díez⁷, Askoa Ibisate⁷, Aitor Larrañaga⁶, Arturo Elosegi⁶ and Ramon J. Batalla^{1,3,8}

¹*Fluvial Dynamics Research Group-RIUS, University of Lleida, Lleida, Spain*

²*Department of Geography, Prehistory and Archaeology, University of the Basque Country, Vitoria-Gasteiz, Spain*

³*Forest Sciences Centre of Catalonia, Solsona, Spain*

⁴*Institute of Geography and Earth Sciences, Aberystwyth University, Ceredigion, UK*

⁵*School of Natural Sciences and Psychology, Liverpool John Moores University, Liverpool, UK*

⁶*Faculty of Science and Technology, University of the Basque Country, Bilbao, Spain*

⁷*Faculty of Education, University of the Basque Country, Vitoria-Gasteiz, Spain*

⁸*Catalan Institute for Water Research, Girona, Spain*

15.50 - 16.10 *Impact of dams on biogeochemical processes in Iberian rivers*

Daniel von Schiller¹, Lydia Ponsatí¹, Ibon Aristi², Maite Arroita², Vicenç Acuña¹, Arturo Elosegi² and Sergi Sabater^{1,3}

¹*Catalan Institute for Water Research, Girona, Spain*

²*University of the Basque Country, Bilbao, Spain*

³*University of Girona, Girona, Spain*

16.10 - 16.30 *River channel geomorphological adjustments to global change through the analysis of historical images in Iberian rivers*

Pedro Besné Torre and Askoa Ibisate González de Matauco

Department of Geography, Prehistory and Archaeology. University of the Basque Country, UPV/EHU, Vitoria-Gasteiz, Spain

16.30 - 17.10 Poster session/Coffee break

Session II: Ecological stressors and hydrological and morphological changes (cont.)

Chairperson: Yolanda Picó

- 17.10 - 17.30** Novel metabolomic responses in fluvial biofilm exposed to drought and pharmaceuticals compounds
Diana Álvarez-Muñoz¹, Albert Serra-Compte^{1,2}, Natàlia Corcoll¹, Belinda Huerta¹, Sara Rodríguez-Mozaz¹, Sergi Sabater^{1,2} and Damià Barceló^{1,3}.
¹Catalan Institute for Water Research (ICRA), Girona, Spain
²Institute of Aquatic Ecology, University of Girona, Girona, Spain
³Water and Soil Quality Research Group, Department of Environmental Chemistry, IDAEA-CSIC, Barcelona, Spain
- 17.30 - 17.50** Water scarcity in humid-climate streams: a manipulative experiment
Arturo Elosegi¹, Ibon Aristi¹, Maite Arroita¹, Lorea Flores¹, José Manuel González², Aitor Larrañaga¹, Miren Martínez³, Aingeru Martínez¹, Olatz Pereda¹ and Libe Solagaistua¹
¹Department of Science and Technology, University of the Basque Country, Bilbao, Spain
²School of Experimental Science and Technology (ESCET), University Rey Juan Carlos, Móstoles, Spain
³Department of Engineering, University of the Basque Country, Bilbao, Spain
- 17.50 - 18.10** Modelling hydroecological processes in semi-arid riparian areas
Alicia García-Arias¹ and Félix Francés¹
¹Research Institute of Water Engineering and Environment, Universitat Politècnica de València, Valencia, Spain
- 19.30 - 21.00** Touristic route
- 21:00** Joint Dinner

Tuesday, 21st October 2014

Session III: Linking chemical exposure and biological effects
Chairperson: Isabel Muñoz

- 9.00 - 9.20** *Atmospheric deposition increases of PCBs and decreases of other organochlorine compounds in remote European areas*
Joan O. Grimalt
 Department of Environmental Chemistry, IDAEA-CSIC, Barcelona, Spain
- 9.20 - 9.40** **Wastewater effluents as the principal emission source of pharmaceuticals to Iberian River Basins (Spain)**
Victoria Osorio¹, Aitor Larrañaga², Jaume Aceña¹, Sandra Pérez¹ and Damià Barceló^{1,3}
¹Water and Soil Quality Research Group, Department of Environmental Chemistry, IDAEA-CSIC, Barcelona, Spain
²Department of Science and Technology, University of the Basque Country, Bilbao, Spain
³Catalan Institute for Water Research (ICRA), Girona, Spain
- 9.40 - 10.00** **Pharmaceuticals fate and effects in WWTP effluent influenced rivers**
Vicenç Acuña¹, Ibon Aristi², Ignasi Aymerich¹, Damià Barceló^{1,3}, María Casellas¹, Natalia Corcoll^{1,4}, Lluís Corominas¹, Belinda Huerta¹, Mira Petrovic^{1,5}, Manel Poch⁶, Lidia Ponsati¹, Sara Rodríguez-Mozaz¹, Albert Ruhl⁷, Sergi Sabater^{1,8}, Daniel vonSchiller¹ and Arturo Elosegi²
¹Catalan Institute for Water Research (ICRA), Girona, Spain
²Faculty of Science and Technology, University of the Basque Country, Bilbao, Spain
³Water and Soil Quality Research Group, IDAEA-CSIC, Barcelona, Spain
⁴Dept. Biological and Env. Sciences, University of Gothenburg, Gothenburg, Sweden
⁵ICREA, Barcelona, Spain
⁶Laboratory of Chemical and Environmental Engineering, University of Girona, Girona, Spain
⁷School of Life Sciences, Arizona State University, Tempe, U.S.A.
⁸Institute of Aquatic Ecology, University of Girona, Girona, Spain
- 10.00 - 10.20** **Bioaccumulation of emerging pollutants in Mediterranean freshwater fish**
Yolanda Pico¹, Vicente Belenguer¹, Cayo Corcellas², Silvia Díaz-Cruz², Ethel Eljarrat², Marinel.la Farré², Francisca Pérez², Pablo Gago-Ferrero², Belinda Huerta³, Alícia Navarro-Ortega², Mira Petrovic³, Sara Rodríguez³, Laia Sabater², Giselle Santin² and Damià Barceló^{2,3}
¹Food and Environmental Safety Research Group, University of Valencia, Burjassot, Spain
²Water and Soil Quality Research Group, Department of Environmental Chemistry, IDAEA-CSIC, Barcelona, Spain
³Catalan Institute for Water Research (ICRA), Girona, Spain
- 10.20 - 10.40** **Occurrence and distribution of perfluoroalkyl substances in Ebro and Guadalquivir Rivers. Two different study cases**
Julián Campo^{1,2}, Ana Masiá², Yolanda Picó², Marinel.la Farré³, Damià Barceló^{3,4}
¹ Desertification Research Centre (CIDE-CSIC, GV, UV). Moncada, Valencia, Spain.
² Food and Environmental Safety Research Group, University of Valencia, Burjassot, Spain
³ Department of Environmental Chemistry (IDAEA-CSIC), Barcelona, Spain
⁴ Catalan Institute of Water Research (ICRA) Girona, Spain
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- 10.40 - 11.00 Occurrence, risk assessment and prioritization of 200 organic contaminants and metals in water and sediment of four Iberian rivers
Maja Kuzmanović¹, Núria de Castro-Català², Antoni Ginebreda¹, Mira Petrović^{3,4}, Isabel Muñoz² and Damià Barceló^{1,3}
¹Institute of Environmental Assessment and Water Research (IDAEA-CSIC), Barcelona, Spain
²Department of Ecology, University of Barcelona, Barcelona, Spain.
³Catalan Institute for Water Research (ICRA), Girona, Spain.
⁴Catalan Institution for Research and Advanced Studies (ICREA), Barcelona, Spain

11.00 - 11.30 Poster session/Coffee break

Session IV: Integrating results to predict impacts on freshwater ecosystem services and integration in RBMPs

Chairperson: Vicenç Acuña

- 11.30 - 12.00 *Riparian communities as sentinels for global changes and providers of ecosystem services*
Teresa Ferreira
Instituto Superior de Agronomia, Universidade Técnica de Lisboa, Lisboa, Portugal
- 12.00 - 12.20 Maximization of ecosystem services by the implementation of the River Basin Management Plan (RBMP) in the Llobregat basin
Marta Terrado¹, Andrea Momblanch², Vikas Kumar³, Laurie Boithias¹, Sergi Sabater^{1,4}, Marta Schuhmacher³, Abel Solera² and Vicenç Acuña¹
¹Catalan Institute for Water Research, Girona, Spain
²Research Institute for Water and Environmental Engineering, Universitat Politècnica de València, Spain
³Environmental Analysis and Management Group, Department of Chemical Engineering, Universitat Rovira i Virgili, Tarragona, Spain
⁴Institute of Aquatic Ecology, Universitat de Girona, Spain
- 12.20 - 12.40 Exploring the future of ecosystem services through a participatory approach in Isla Mayor, Andalusia, Spain
Sherman Farhad¹, Miquel A. Gual¹ and Francesc La Roca²
¹Departamento de Economía, Mét. Cuantitativos e Hª Económica, Universidad Pablo de Olavide, Spain
²Departamento de Economía Aplicada, Universitat de València, Spain
- 12.40 - 13.00 In-stream processes in the nutrient retention ecosystem services: the importance of river networks at the watershed scale
María Sánchez-Canales¹, Rafa Marce², Vicenç Acuña², F. Javier Eloza¹
¹Universidad Politécnica de Madrid, Escuela Técnica Superior de Ingenieros de Minas, Madrid, Spain
²Institut Català de Recerca de l'Aigua (ICRA), Girona, Spain
- 13.00 - 14.40 Lunch

Session V: Global change and adaptation and mitigation measures

Chairperson: Sebastian Birk

14.40 - 15.10 *Climate induced changes on the hydrology of Mediterranean basins: Lessons learned from the CLIMB project - Now what?*

Ralf Ludwig and the CLIMB consortium

Department of Geography, Ludwig-Maximilian-Universitaet Muenchen, Munich, Germany

15.10 - 15.30 **Assessment of Global change impacts on groundwater resources in Souss-Massa basin**

Redouane Choukr-Allah¹, Abdelaziz Hirich¹ and Abdessadek Nrhir²

¹Agronomic and Veterinary Medicine Hassan II Institute, Agadir, Morocco

²Watershed Basin Agency (ABH) of Souss Massa Daraa, Agadir, Morocco

15.30 - 15.50 **Detection and attribution of global change effects on river nutrient concentration dynamics in SCARCE basins**

Rosana Aguilera¹, Rafael Marcé¹ and Sergi Sabater^{1,2}

¹Catalan Institute for Water Research (ICRA), Girona, Spain

²Institute of Aquatic Ecology, Faculty of Sciences, University of Girona, Girona, Spain

15.50 - 16.10 **Water availability variation at the Ésera River Basin (Spain) due to climate change and its influence on water management**

Abel Solera¹, María Pedro-Monzonis¹, Gianbattista Bussi², Andrea Momblanch¹ and Félix Francés¹

¹Research Institute of Water and Environmental Engineering, Technical University of Valencia, Spain

²School of Geography and the Environment, University of Oxford, United Kingdom

16.10 - 16.50 **Poster session/Coffee break**

Session VI: Integrating science, economic and social impacts and policy

Chairperson: Sergi Sabater

16.50 - 17.20 *Managing multiple stress for multiple benefits: Towards new scientific concepts, methods and tools in river basin management*

Sebastian Birk and Daniel Hering

Department of Aquatic Ecology, University of Duisburg-Essen, Essen, Germany

17.20 - 17.40 **Application of outranking method to adaptation strategies for water supply management**

Vikas Kumar¹, Luis Del Vasto-Terrientes², Tzu Chi Chao², Aida Valls² and Marta Schuhmacher¹

¹AGA research group, Departament d'Enginyeria Química, Universitat Rovira i Virgili, Tarragona, Spain

²ITAKA research group, Departament d'Enginyeria Informàtica i Matemàtiques, Universitat Rovira i Virgili, Tarragona, Spain

Final programme

17.40 - 18.00 How can an ES approach linked to deliberative scenarios contribute to the WFD implementation?

Francesc La-Roca¹, Graciela Ferrer¹ and José Ramón Díez²

¹Department for Applied Economics, University of Valencia, Valencia, Spain

²Department of Mathematics and Experimental Sciences Didactics, University of the Basque Country, Vitoria-Gasteiz, Spain

18.00 - 18.20 Evaluation of economic impacts of drought events: evidences from some areas in Europe

Dario Musolino and Alessandro de Carli

CERTeT (Centre for Research on Regional Economics, Transport and Tourism), Bocconi University, Milan, Italy

Final remarks and closure of the meeting

18.20 - 18.30 Final remarks and closure of the meeting

18.30 End of meeting

In italics, invited presentations

Posters

Session I: Integrated assessment of water quantity and quality and Global Change

- 1.- **Problems arising from industrial, urban and agricultural activities on the aquifers of the lower reaches of the river Francolí**
Diana Puigserver, José M^a Carmona, Xavier Font and Manuel Viladevall
 Departament of geochemical, geological survey and petrology, University of Barcelona, Barcelona, Spain

- 2.- **Is reclaimed water for agricultural irrigation a source of contaminants in vegetables?**
 Carme Biel¹, Robert Savé¹, Pere Muñoz¹, Diana Calderón², Víctor Matamoros² and Josep M. Bayona
¹Environmental horticulture, IRTA
²Environmental Biogeochemistry, IDAEA-CSIC, Barcelona, Spain

- 3.- **Water resources stochastic modeling and prediction -a comparison between box-jenkins and kalman filtering methods**
Khadidja Boukharouba and Ahmed Kettab
 Laboratoire de Recherche des Sciences de l'Eau-LRS-EAU Ecole Nationale Polytechnique (E.N.P), Alger

- 4.- **Assessment of the potential of the Wastewater Treatment and Reuse in Morocco under climate and global changes**
Redouane Choukr-Allah¹ and Abdessadek Nrhira²
¹Agronomic and Veterinary Medicine Hassan II Institute, Complex of Horticulture, Agadir, Morocco
²Watershed Basin Agency (ABH) of Souss Massa Daraa, Agadir, Morocco

- 5.- **Characterizing the importance of regional groundwater systems in the base flow of a Mediterranean stream using hydrochemistry, Ra isotopes and Rn**
Albert Folch¹, Anna Menció², Jordi Garcia-Orellana³, Joan Bach⁴, Vanessa Galán¹, Valentí Rodellas³, Marc Cerdà³ and Josep Mas-Pla⁵
¹Hydrogeology Group (UPC-CSIC), University Politècnica de Catalunya-BarcelonaTech, Barcelona, Spain
²Department of Environmental Science, University of Girona, Girona, Spain
³Department of Physics-ICTA, University Autònoma de Barcelona, Bellaterra, Spain
⁴Unit of External Geodynamics and Hydrogeology, University Autònoma de Barcelona, Bellaterra, Spain
⁵Catalan Institute for Water Research, Girona, Spain

Session II: Ecological stressors and hydrological and morphological changes

- 6.- **Assessment of the sediment ecotoxicological status in four Iberian rivers**
 Núria de Castro-Català¹, Maja Kuzmanovic², Neus Roig^{3,4}, Jordi Sierra^{3,5}, Damià Barceló^{2,6}, Antoni Ginebreda², Sandra Pérez², Mira Petrovic⁶, Yolanda Picó⁷, Marta Schumacher^{3,4} and Isabel Muñoz¹
¹Department of Ecology, University of Barcelona, Barcelona, Spain
²Water and Soil Quality Research Group, IDAEA-CSIC, Barcelona, Spain
³Environmental Engineering Laboratory, Universitat Rovira i Virgili, Tarragona, Spain
⁴Laboratory of Toxicology and Environmental Health, Universitat Rovira i Virgili, Reus, Spain
⁵Laboratori d'Edafologia, Faculty of Pharmacy, University of Barcelona, Barcelona, Spain
⁶Catalan Institute for Water Research (ICRA), Girona, Spain
⁷Food and Environmental Safety Research Group, University of Valencia, Burjassot, Spain

- 7.- Application of Wavelet spectral analysis method to interpretation rivers mebolism
Jonatan Val, M^a Rosa Pino and David Chinarro
San Jorge University, Zaragoza, Spain
- 8.- Evaluation of habitat suitability for redfin barbel under climate change scenarios in the Siurana River
Rafael Muñoz-Mas¹, Francisco Martínez-Capel¹, Pedro Millán-Romero², Francisco J. Vallés Morán², Ignacio Andrés-Doménech², Gianbattista Bussi^{2,3} and Félix Francés²
¹Institut d'Investigació per a la Gestió Integrada de Zones Costaneres (IGIC), Universitat Politècnica de València, Gandia, Spain
²Research Institute of Water and Environmental Engineering (IIAMA), Universitat Politècnica de València, València, Spain
³School of Geography and the Environment, University of Oxford, Oxford, UK
- 9.- Effects of aeration and sediment grain size on invertebrate interactions and litter breakdown
Olatz Pereda, Aitor Larrañaga, Ibon Aristi, Maite Arroita, Lorea Flores, Libe Solagaistua and Arturo Elosegi
Faculty of Science and Technology, University of the Basque Country UPV/EHU, Bilbao, Spain
- 10.- Changes in stream discharge affect more benthic than hyporheic breakdown
Libe Solagaistua, Aitor Larrañaga, Ibon Aristi, Maite Arroita, Lorea Flores, Olatz Pereda and Arturo Elosegi
Faculty of Science and Technology, University of the Basque Country, Bilbao, Spain
- 11.- Effects of river regulation in bed mobility and invertebrate communities
Gemma Lobera Galan^{1,2}, José A. López-Tarazón^{1,2,3}, Isabel Muñoz⁴, Damià Vericat^{1,2,5,6} and Ramon J. Batalla^{1,2,5,7}
¹Fluvial Dynamics Research Group -RIUS
²Department of Environment and Soil Sciences, University of Lleida, Lleida, Spain
³School of Natural Sciences and Psychology, Liverpool John Moores University, Liverpool, UK
⁴Department of Ecology, Faculty of Biology, University of Barcelona, Barcelona, Spain
⁵Forest Sciences Centre of Catalonia, Solsona, Spain
⁶Institute of Geography and Earth Sciences, Aberystwyth University, Wales, UK
⁷Catalan Institute for Water Research (ICRA), Girona, Spain

Session III: Linking chemical exposure and biological effects

- 12.- Environmental Concentrations of Metals in the Catalan Stretch of the Ebro River, Spain: Assessment of Temporal Trends
Lolita Vilavert¹, Clara Sisteré¹, Marta Schuhmacher^{1,2}, Martí Nadal¹ and José L. Domingo¹
¹Laboratory of Toxicology and Environmental Health, University Rovira i Virgili, Reus, Spain
²Environmental Engineering Laboratory, Department of Chemical Engineering, University Rovira i Virgili, Tarragona, Spain
- 13.- Incidence and distribution of heavy metals and pharmaceutical products in waters of the Turia River basin
Vicente Andreu¹, Eugenia Gimeno², Juan Antonio Pascual¹ and Yolanda Picó³
¹Desertification Research Centre-CIDE (CSIC-UV-GV), Moncada, Spain
²Foundation University of Valencia-CIDE, Moncada, Spain
³Faculty of Pharmacy, University of Valencia, Burjassot, Spain

- 14.- Analysis of pharmaceuticals and their metabolites in fish from Llobregat river
Jaume Aceña¹, Pilar Campos¹, Lluís Benejam², Laia Sabater¹, Sandra Pérez¹ and Damià Barceló^{1,3}
¹Water and Soil Quality Research Group, IDAEA-CSIC, c/Jordi Girona 18-26, Barcelona, Spain
²Department of Environmental Sciences, University of Vic, Vic, Spain
³Catalan Institute of Water Research (ICRA), Girona, Spain
- 15.- Individual and mixture effects of selected pharmaceuticals on larval development of two shrimp species: an experiment on *Palaemon longirostris* and *Palaemon varians*
Enrique González-Ortegón¹, Luis Giménez¹, Lewis LeVay¹ and Julián Blasco²
¹School of Ocean Sciences, Bangor University, Menai Bridge, UK
²Institute de Ciencias Marinas de Andalucía, CSIC, Puerto Real, Spain
- 16.- Effect of oxytetracycline (OTC) on growth of marine and freshwater microalgae
Ignacio Moreno-Garrido, Luis M. Lubián and Julián Blasco
 Institute of Marine Sciences of Andalusia (CSIC), Puerto Real, Cádiz, Spain
- 17.- Determination of pharmaceuticals in soil samples. Evaluation of QuEChERS advantages and disadvantages
Eric Carmona¹, Vicente Andreu² and Yolanda Picó¹
¹Environmental and Food Safety Research Group, Department of Medicine Preventive, University of Valencia, Burjassot, Spain
²Desertification Research Centre – CIDE (CSIC-UV-GV), Moncada, Spain
- 18.- Assessment of occurrence of 8 pharmaceuticals in the Llobregat river and sensitivity analysis of several parameters using Monte Carlo methods
Zoran Banjac¹, Antoni Ginebreda¹, Laurie Boithias², Rafael Marcé² and Damià Barceló^{1,2}
¹Water and Soil Quality Research Group, Department of Environmental Chemistry, IDAEA-CSIC, Barcelona, Spain
²Catalan Institute for Water Research (ICRA), Girona, Spain
- 19.- Estimation of emission factors of 200 emerging organic microcontaminants by inverse modeling in a Mediterranean river basin (Llobregat, NE Spain)
Zoran Banjac¹, Antoni Ginebreda¹, Maja Kuzmanovic¹, Rafa Marcé², Martí Nadal³, Josep M. Riera⁴ and Damià Barceló^{1,2}
¹Water and Soil Quality Research Group, Dep. of Environmental Chemistry, IDAEA-CSIC, Barcelona, Spain
²Catalan Institute for Water Research (ICRA), Girona, Spain
³Laboratory of Toxicology and Environmental Health, IISPV, Universitat Rovira i Virgili, Reus, Spain
⁴Organización, Calidad y Proyectos, S.L., Barcelona, Spain
- 20.- Evaluation of four extraction procedures in the analysis of 23 perfluoroalkyl substances in soil and sediment
Julián Campo^{1,2}, María Lorenzo² and Yolanda Picó²
¹Desertification Research Centre, Moncada, Valencia, Spain
²Food and Environmental Safety Research Group, University of Valencia, Burjassot, Valencia, Spain
- 21.- Assessment of pesticide occurrence in the Túria and Júcar Rivers
Ana Masiá¹, Alexander Ccancapa¹, Vicente Andreu² and Yolanda Picó¹
¹Environmental and Food Safety Research Group, University of València, Burjassot, Spain
²Research Centre of Desertification-CIDE (CSIC-UV-GV), Moncada, Spain

- 22.- **On the presence of pesticides in waters and sediments of the river Júcar, Spain**
Juan Antonio Pascual Aguilar^{1,2}, Vicente Andreu¹, Julián Campo^{2,3}, Ana Masiá³ and Yolanda Picó³
¹Environmental forensic and Landscape Chemistry Group, Centro de Investigaciones sobre Desertificación-CIDE (CSIC-UV-GV), Moncada, Spain
²Centro para el Conocimiento del Paisaje, Matet, Spain
³Food and Environmental Safety Research Group, Department of Medicine Preventive, University of Valencia, Burjassot, Spain
- 23.- **Analysis of polar triazines and degradation products in waters by in-tube solid-phase microextraction and capillary chromatography: an environmentally friendly method**
Javier Pla-Tolós, Pascual Serra-Mora, Yolanda Moliner-Martínez, Jorge Verdú-Andrés, Rosa Herráez-Hernández and Pilar Campíns-Falcó
 Department of Analytical Chemistry, University of Valencia, Burjassot, Valencia, Spain
- 24.- **Determination of Irgarol in coastal waters of the Region of Valencia by in-tube solid phase microextraction coupled to capillary liquid chromatography**
Ana I. Argente-García, Stéphanie Aparicio-Antón, Yolanda Moliner-Martínez, Carmen Molins-Legua, Jorge Verdú-Andrés and Pilar Campíns-Falcó
 Department of Analytical Chemistry, University of Valencia, Burjassot, Valencia, Spain
- 25.- **Polymer characterization and preliminary studies on their degradation**
Daniel Rivas¹, Antoni Ginebreda¹, Carmen Quero², Sandra Perez¹ and Damià Barcelo^{1,3}
¹Department of Environmental Chemistry, IDAEA-CSIC, Barcelona, Spain
²Department of Biological Chemistry and Molecular Modelling, IQAC-CSIC, Barcelona, Spain
³Catalan Institute for Water Research (ICRA), Girona, Spain
- 26.- **UHPLC-MS/MS in combination with microextraction techniques for sensitive assay of amphetamines in river water**
Diego Airado-Rodríguez, Ana M. García-Campaña and Carmen Cruces-Blanco
 Department of Analytical Chemistry, Faculty of Sciences, University of Granada, Granada, Spain
- 27.- **Fast methodology for detection of LSD, ketamine and their metabolites in environmental water**
Diego Airado-Rodríguez, Ana M. García-Campaña and Carmen Cruces-Blanco
 Department of Analytical Chemistry, Faculty of Sciences, University of Granada, Granada, Spain
- 28.- **An approach to the environmental scoring of siloxanes**
Nuno Ratola^{1,2}, José Avelino Silva¹, Vera Homem¹, Alessandra Cincinelli³, Pedro Jiménez-Guerrero², Lúcia Santos¹ and Arminda Alves³
¹LEPABE-DEQ, Faculty of Engineering, University of Porto, Rua Dr. Roberto Frias, Porto, Portugal
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- 29.- **Control and modelization of fouling on a spiral wound reverse osmosis membrane in the treatment of olives washing and olive mill wastewater**
Javier M. Ochando-Pulido, María D. Víctor-Ortega and Antonio Martínez-Férez
 Chemical Engineering Department, University of Granada, Granada, Spain

- 30.- Comparison of Fenton-like oxidation and UV/TiO₂ photocatalysis as pretreatments for final purification of olive mill wastewater by membrane technology
Javier M. Ochando-Pulido, María D. Víctor-Ortega and Antonio Martínez-Férez
Chemical Engineering Department, University of Granada, Granada, Spain
- 31.- Study of ion exchange equilibrium for saline toxicity removal from pretreated olive mill wastewater by using Dowex Marthon C and Amberlite IRA-67 resins
María Dolores Víctor-Ortega, Javier Miguel Ochando-Pulido and Antonio Martínez-Férez
Department of Chemical Engineering, Granada, Spain
- 32.- Study of resin disposition and temperature in an Ion Exchange semi-batch system as pretreatment for effective reduction of membrane fouling
María Dolores Víctor-Ortega, Javier Miguel Ochando-Pulido and Antonio Martínez-Férez
Department of Chemical Engineering, Granada, Spain

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- 33.- Analysis of the uncertainty in ecosystem services monetary valuation - a case study at the river basin scale
Laurie Boithias¹, Marta Terrado¹, Lluís Corominas¹, Guy Ziv⁴, Sergi Sabater^{1,2}, Vikas Kumar³, Montse Marqués³, Marta Schuhmacher³ and Vicenç Acuña¹
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- 34.- Present and future variation of drought patterns over Europe under several climate change scenarios
Andrés Olmedo, Pedro Jiménez-Guerrero, Juan Pedro Montávez and Nuno Ratola
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- 35.- Ecotoxicological status of sediments as a complementary tool for the surface water quality assessment under WFD
Neus Roig^{1,2}, Jordi Sierra^{1,3}, Martí Nadal², Ignacio Moreno-Garrido⁴, Elena Nieto⁴, Miriam Hampel⁴, Elena Perez Gallego⁵, Marta Schuhmacher^{1,2} and Julián Blasco⁴
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36.- Analyzing the sensitivity of a USLE based model applied in a Mediterranean river basin under global change and management implications

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37.- Development of integrated land use and water management scenarios based on climatic and socio-economic forcing - GLOBAQUA Project WP2-SCENARIOS

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