

Educational Capacity Strengthening for Risk Management of Non-native Aquatic Species in Western Balkans – RiskMan

Final Conference Book of Abstracts

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Partners



Università degli Studi di Palermo



EKOMENLOG OHRID
Association for ecology



Albanian Center for Environmental Protection and Sustainable Development



MSKU Rector's welcome

It is a great honour and pleasure to welcome you to the final conference of the project entitled **“Educational Capacity Strengthening for Risk Management of Non-native Aquatic Species in Western Balkans (Albania, Bosnia and Herzegovina and Montenegro)”**. I wish to extend a warm welcome to our partners, participants from Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Croatia, Greece, Italy, as well as participants from Turkey. We are delighted to have you here to participate and share in the conference.

With the attendance of experienced experts and the contributions of people from various countries and different backgrounds, more inspiring ideas and beneficial experiences could be shared in this conference. It is hoped that more opportunities will be explored, and more solutions of issues related to the current situation on non-native species may be found.

I wish to express my gratitude to all participants and invited speakers for their full cooperation and contribution to the conference. I wish the participants a very fruitful and productive meeting. I hope you all will enjoy your stay in Turkey.

MSKU Rector
Prof. Dr. Hüseyin ÇİÇEK



General Introduction of RiskMan Project

Non-native species are widely recognized as one of the main threats to aquatic biodiversity and impact to human well-being. In Balkans major corridors for their spread are transboundary rivers and lakes that drain a number of countries and create conflicts of interest since water resources are unevenly distributed among the States. A knowledge gap on the presence, distribution and impacts of non-native aquatic species in the Balkans was apparent.

The main aim of RiskMan Project was to strengthen the Educational Capacity for Risk Management of NN Aquatic Species in Albania, Bosnia and Herzegovina, Montenegro by promoting the education of stakeholders and higher education students and stimulating cooperation among the Partner countries. To this aim, the RiskMan Consortium proposes to design a thorough set of measures based firstly on new proposed educational paths to increase the ability of local target groups to both mitigate and proactively prevent the potential negative impact on socio-ecological systems.

RiskMan Consortium promoted the collaboration of Programme Countries academicians and shared their own experiences with universities and NGOs members of Partner Countries. The specific objectives of the project were to: update the skills of higher education system about management of aquatic NN species in the Partner Countries in line with the international directives; support the Partner Countries to address the challenges concerning the risk assessment and management, stakeholders' participation, planning and governance of aquaculture facilities and industries; promote voluntary convergence with EU developments in higher education and fisheries industry and contribute to cooperation among the Consortium Partners on the management of non-native species; develop risk management model for non-native aquatic species for Western Balkans; produce policy framework for creating new occupation.

During our joint work we successfully addressed all those topics and at this final conference all activities and results are summarized.

Coordinator of the project

Prof. Dr. Ali Serhan Tarkan





ABSTRACTS

Note: All the abstracts presented at the Conferences report part of the results of the Project “RiskMan - Educational capacity strengthening for risk management of non-native aquatic species in Western Balkans (Albania, Bosnia and Herzegovina and Montenegro)” (project reference: 619384-EPP-1-2020-1-TR-EPPKA2-CBHE-JP) funded by ERASMUS+ (EPPKA2 – Cooperation for innovation and the exchange of good practices, CBHE-JP – Capacity Building in higher education)

An assessment of regulation, education practices and socio-economic perceptions of non-native aquatic species in the Balkans

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Abstract

Alongside climate change, the introduction of non-native species (NNS) is widely recognized as one of the main threats to aquatic biodiversity and human well-being. Non-native species and biodiversity are generally low priority issues on the political agendas of many countries, particularly in European countries outside the European Union (EU). The objectives and tasks of this study were to address policy regulation, education level, education practices, and socioeconomic perceptions of NNS in the Balkans. A questionnaire-based survey was conducted in Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Turkey (Balkan EU candidate and potential candidate members), in Croatia and Greece (Balkan EU Member States) and Italy (non-Balkan EU Member State). The EU Alien regulation (1143/2014) concerning NNS is implemented in EU Member States and Montenegro, whereas Albania, Bosnia and Herzegovina and Turkey have not reported specific policy regulations for NNS. Permanent monitoring programmes specifically designed for NNS have not yet been established in the EU Member States. Most countries tackle the issue of NNS through educational activities as part of specific projects. Education level is indicative of the implementation of NNS policy regulation, and efforts are needed for the proper development of relative study programmes. Public awareness and educational preparedness concerning NNS in the Balkans were identified as poor. Strong programmes for management and education should be developed to increase public awareness to prevent further biodiversity losses in the Balkan region.

Keywords: Invasive aquatic species, legislation, public awareness, western Balkans, EU

The final results of the database of aquatic NNS identified in Western Balkan countries

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Abstract

Although several attempts to establish a database on non-native species in Western Balkans have been done through previous EU projects, the database on non-native species still is not complete nor available online. Hence, literature search of introduced freshwater and marine organisms were performed for Albania, Bosnia and Herzegovina and Montenegro. In the database the geographic distribution of established non-native species for each country, non-native species status (extant and horizon) and pathways and vectors of introduction were included. In total, in Albania 64 marine and 65 freshwater, Montenegro 98 marine and 61 freshwater and in Bosnia and Herzegovina 65 freshwater species were found. However, the majority of them belong to horizon species or unknown status (recorded only once) which imply the need for more field work covering invasive biology in Western Balkans. This list represents one of the most updated lists of aquatic non-native species for the region.

Keywords: non-native species, database, Western Balkans



Presentation of the curricula updating of the HIE of the WBs Countries

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Abstract

The RiskMan Project was built with the main aim to strengthen the Educational Capacity for Risk Management of Non Native Aquatic Species in Albania, Bosnia and Herzegovina, Montenegro by promoting the education of stakeholders and higher education students and stimulate cooperation among the target countries. To achieve this aim, a specific working package (WP4) was planned in order to update the skills of the higher education system about management of aquatic NNS in the partner Countries of WBs in line with the international directives given by FAO, IUCN and the strategies of European Policy Cooperation and at the same time support the Partner Countries to address the challenges facing their higher education institutions and systems concerning the management NN species, including risk assessment, stakeholders' participation, planning and governance of aquaculture facilities and industries. During the project, the RiskMan Consortium have proposed 3 different courses related to risk identification, assessment and management to be included in the Bachelor/Master/PhD Curricula of 4 institutions of the Partner Countries (Sarajevo University, Bihać University, University of Tirana and Montenegro University). The titles of the three new courses are: Biology of aquatic NNS; Impacts of Aquatic NNS and Risk Analysis and management of aquatic NNS. After the implementation of all the teaching materials, a pilot testing was carried out in Sarajevo University in March 2022 and the feedback received by the participants were analysed. Then, the new courses were finalized and all the bureaucratic procedures for their implementation were started.

Keywords: education, risk assessment, reforming of curricula



Online Questionnaires for the Detection of Alien Species in the Western Balkans

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Abstract

In order to evaluate the current status of the Non Native Species in the Western Balkan Countries (Albania, Montenegro, Bosnia & Herzegovina) there are multiple steps to complete. A preliminary literature review regarding the already reported and recorded NNS in these countries was implemented by the partners of the project. Additionally, a series of interviews and surveys were carried on with industry representatives and stakeholders such as fishers, tourists, scientists and naturalists to collect additional data and information for NNS that are not already reported and published in the current bibliography. All the findings were combined in order to create national lists of NNS and the results are: 141 NNS present in Albania, 66 NNS present in Bosnia & Herzegovina and 162 NNS present in Montenegro. These lists, in combination with some criteria chosen by the project partners, were used in order to create online platforms of reporting NNS by citizen scientists. In total 4 platforms were created in Albanian, Montenegrin, Bosnian and English containing the NNS species that can be found in each country and including identification photographs. The platforms were disseminated through the social media and the network of the partners and press releases. In total 43 answers were received from all WB countries and the results were analyzed.

Keywords: Citizen Science, Lists, Platforms, Alien Species, Western Balkans

Analysis of the results of the pilot test on the knowledge and prevalence of invasive species in Bosnia and Herzegovina

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Abstract

Invasive species, as the biggest threat of biodiversity, are a major problem both worldwide and in Bosnia and Herzegovina. From previous research, it was found that the knowledge of invasive species is very low. Thus, the aim of this research was to determine the knowledge of certain active invasive species in Bosnia and Herzegovina, by a survey among recreational and professional fishermen. A total of 23 respondents were interviewed, and the results of the survey indicate that 65 % respondents possess the knowledge of alien species. The most of respondents are familiar with gibel carp *Carassius gibelio*, pumpkinseed *Lepomis gibbosus* and crayfish *Pacifastacus leniusculus*. Most species were observed at various substrates, at depth up to 5 m, and specimen sizes from 11-30 cm. Most respondents return alien species into the water (probably related to the fish) which raises the need to clearly define the legal regulations on invasive species and the need for knowledge sharing to local people and stakeholders.

Keywords: invasive species, BiH, pilot test

Non-native species perception by the fishery industry stakeholders in Albania, Montenegro and Bosnia and Herzegovina

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Abstract

In the framework of the implemented activities of the RiskMan project in the Western Balkan countries, interviews with fisheries and aquaculture industry representatives were accomplished with the aim to collect more detailed information about the status of non-native species (NNS) in Balkans. Sample surveys and interviews were used to collect the available data on the aquatic species that are currently cultured into the aquaculture facilities of the target countries with main attention to the NNS. At the same time sample surveys and interviews were submitted to the professional fishers in order to collect any data on the occurrence of aquatic NNS that have not yet been published or known to the public. In Albania, a positive correlation was found between the education level and the knowledge about the NNS. It is also important to note that most of the interviewed fishers showed to be available in the future collaboration with the scientists. In Bosnia and Herzegovina, although interviewees agree that NNS pose a threat to the native biodiversity and must be controlled, they differ in the opinion on how to best prevent or reduce the damage caused by the introduction of NNS into the wild. Overall results showed that activities on raising awareness and information dissemination about the non-native fish species are urgently needed in both aquaculture and fisheries sectors in Bosnia and Herzegovina. In Montenegro, all interviewed candidates completely agree that some NNS must be eliminated from the territory, when possible. As citizens, almost all the interviewed fishers are willing to stop breeding NNS if that would reduce the risk of damage to the environment, the economy and human health and they all are available to collaborate with the scientists in the future.

Keywords: fishers, non-native species, interviews, marine aquaculture, inland aquaculture.

Development of tailored course for unemployed young adults

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Abstract

According to the World Bank Report (2019), the employment gained in the Western Balkans were larger for younger (15–24 years) and older (55–64 years) age groups but negligible for the prime-age group (25–54 years). For this reason, young adults between ages 18-35 years old are defined as the main target group of the working package “Development of tailored courses for unemployed young adults”. Aquaculture, aquarium trade and fisheries sectors are growing rapidly in countries such as Montenegro, Bosnia & Herzegovina and Albania and are in need of employers that have adequate and appropriate knowledge of these sectors. In the context of the working package, the partners of the project “RiskMan” have created tailored courses regarding the Non-Native Species that exists in the countries of Albania, Montenegro and Bosnia & Herzegovina, how to identify them, how these species enter the aquatic ecosystems and their negative effects in the environment, the economy and human health. Additionally, the courses are aiming to familiarize the students with the general principles of Risk Management and Risk Management of NNS in the sectors of aquaculture and fisheries and the use of screening decision – support tools. Finally, the package is aiming to create a policy framework for creating the occupation of “Risk Manager for Non-Native Species in the Aquatic Ecosystems”. For that purpose, the courses were separated into three units, 1. Conceptual Framework, 2. General Principles of Risk Management and 3. RiskMan model and the “Risk Manager” occupation. The course material was prepared by the partners iSea (Greece), University of Palermo (Italy) and Mugla Sıtkı Kocman University (Turkey). The materials were presented in a “Training of Trainers” event in Kotor, Montenegro, where representative trainers from the countries of Albania, Montenegro and Bosnia & Herzegovina were trained in the context of the course material. The courses were pilot tested and presented by the trained trainers in the three countries and the course material was validated by the students with a help of pre and post survey.

Keywords: Courses, Unemployed, Youth, Risk, Management

Introducing the Risk Management Model for Western Balkans Countries and the figure of the Risk Manager

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Abstract

Traditionally, risk management has mainly focused on dealing with the risks that the business may face, without making a distinction between sector and risk. However, global financial scandals and developments in information technologies required a different approach to risk management. In the modern sense of risk management, it has emerged as a necessity to deal with the sector and the type of risks that may be encountered. This new approach, called Enterprise Risk Management (ERM), has brought along with it the development of a strategic perspective in the rapidly changing risk environment in businesses and the application of a risk management model developed by taking into account the priorities of the sector. Aiming to propose a risk management model for NNS in the Western Balkans, this study demonstrates how the key outputs of the RISKMAN project can guide the five basic steps of risk management: identify risk, analyse risk, evaluate risk, treat to risk, monitor and review the risk. In order to identify risk, RISKMAN Work Package (WP) 1 provides a review of policy regulation, environmental definitions and management plans; educational level and practice in education and socioeconomic perception of NNS and the collection of literature data and information through the involvement of stakeholders in identification of the risks for the aquaculture and fisheries sectors and early detection of NNS has been carried on in the RISKMAN WP2. In order to analyse the risk, The RISKMAN project partners propose the implementation of a National Invasive Species Strategy and Action Plan in relation to EU legislations to block the loss of biodiversity and combating climate change for the 3 Target Western Balkans Countries. In order to evaluate or rank the risk, the partners tested the combined use of AS-ISK and MaxEnt tools in order to prioritise the risk (i.e. evaluate the most impacting NNS, ...) in the WP3. In order to treat the risk, the partnership prepared tailored courses and new curriculum or updating of the existing ones have been implemented in the WP4 and WP5. In order to monitor and review the risk, the partnership proposes the implementation of control over the introduction, release and establishment of new NNS and the establishment of border control and biosecurity for the 3 Target Western Balkans Countries and the neighbouring countries. Regarding the aforementioned risk management model steps, in this study Risk Manager occupation is provided in order to implement effective risk management related to NNS in Western Balkans.

Keywords: Risk Management, Risk Management Model, NNS, Western Balkans

A brief introduction about the Policy framework for creating new occupation “Risk Manager”

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Abstract

Risk is the events or situations that may constitute an obstacle to the realization of objectives. The French writer and philosopher Voltaire likened risk to the wind inflating the sails of a boat. Too much of it can cause the boat to sink, while too little can cause it to stay where it is. Risk management turns what could be a threat into an opportunity. Risk types are classified as strategic, operational, image (reputation), legal, corruption, financial, human resources and information systems risks. Organizations should evaluate financial risks, operational risks, external environmental risks and strategic risks and determine a risk management strategy. In this context, "Risk Management Specialist" or "Risk Manager" is defined as the person who controls and reduces the risks determined by financial analysis and operational instruments in companies and carries out studies to prepare the best action plan. The risk management specialist is obliged to perform various duties, provided that the general working principles of the enterprise are taken into consideration. Among the duties to be fulfilled by the Risk Management Specialist; to improve the risk management maturity level of the organization, to conduct benchmarking studies and researches in order to monitor current risks; to identify, measure, evaluate and monitor technological and commercial risks and to work to eliminate the risk, to take part in the preparation of reports submitted to the "Early Risk Detection Committee" at the board level; to establish and implement policies and procedures related to the risk management framework; as part of the risk management team, to coordinate risk management activities with department managers and their respective supervisors, to monitor and follow risk analysis methods from various sources and to perform risk model analysis. "Risk Manager", which is one of the main outputs of the Riskman Project, and the complex structures of the related enterprises, institutionalization requests, requirements of investors, reducing the cost of losses, reputation, compliance with legal regulations, increasing with the changing world, risks with changing structure will ensure the elimination of uncertainties with risk management and risk manager.

Keywords: Risk, Risk Management, Risk Manager, Policy framework



Future prospective and sustainability of the RiskMan project

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Abstract

The role of the Dissemination and Exploitation work package (WP7) is to connect the project with the key actors, communicate project's results, engage society, to increase public awareness and boost higher education capacity practices towards a literate community on NN species. In order to ensure the project will be equally promoted in all participating countries all project partners were involved in this WP, coordinated by the University of Montenegro. In order to insure the proper implementation of the project dissemination activities, the detailed Dissemination and Exploitation plan was prepared at the beginning of the project, with clear identification of activities that will be performed during project implementation process. All partners worked on preparation of the Web Page hosted by the Muğla Sıtkı Koçman University (MSKU) where all the activities and project partners are presented, in national and English language. Social networks, Facebook page and twitter account, where opened, and all the partners regularly published their daily project activities. Numerous media and press releases, live hosting at radio and TV stations were done, bringing the importance of management of invasive species issue to wider audience, to relevant stakeholders and interested parties. Important scientific achievements are and will be published in the form of academic articles. Numerous items of promotional materials (posters, flyers, backdrops, brochures, etc) were prepared in English and national languages in order to disseminate project activities and results to wider audience. Sustainability of the project will be achieved through the future life of RiskMan Web page and social media, through implementation of new courses at the Universities and online questionnaires' that will be used and promoted frequently. The greatest sustainability of the project is in the network of colleagues, scientists and friends that will continue to work together and to deal with important issues of the invasive species and their management.

Keywords: Dissemination, sustainability, promotion, NN species



Keynote presentation

WRA-types of decision-support toolkits, protocol and procedural errorsMarina Piria^{1,2,*}, Lorenzo Vilizzi²

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Abstract

In recent years, risk screening has been facilitated by the development of electronic decision-support tools, with perhaps the best known, and possibly first, example being the Australian Weed Risk Assessment (WRA), developed for screening terrestrial plants and later adapted to aquatic plants. The WRA questionnaire and related scoring system was the template for creation of the -ISK toolkits such as Aquatic Species Invasiveness Screening Kit (AS-ISK), the Terrestrial Animal Species Invasiveness Screening Kit (TAS-ISK). A common feature of the AS-ISK and TAS-ISK is a set of six questions with which the assessor evaluates how predicted (future) climate conditions are likely to affect the various risks by the species being screened. For most questions of the WRA-type toolkits, the assessor must rely on literature and evidence-based research to provide an appropriate response, justification, and level of confidence in the response. However, the response to some questions, e.g. those related to climate change for which literature may be limited or speculative, often depends on best judgement from the assessor. As a result, discrepancies may occur when two or more assessors are involved in the screening of the same species, and this may ultimately lead to large variation in risk outcome scores. To overcome discrepancies the 'consensus' screenings as part of recent advancements in environmental risk analysis is recommended to be used. The definition of the risk assessment area varies considerably in applications of the WRA-type screening toolkits. The risk assessment areas can consist of extensive geographical areas, regions, countries, parts of countries, states or other political entities, water bodies, river basins, river estuaries, lake catchments, wetlands and marine regions and also climo-geographic/freshwater ecoregions. The definition of a risk assessment area that spans two or more climo-geographic regions could impede the abilities of regulatory bodies to recognise differences in risk level and hence take appropriate management action. The marine environment is intrinsically more uniform than the freshwater one, though a climo-geographic approach may be applicable in some cases, but problematic in cases of countries with short coastlines. The selection of non-native species for screening and correct *a priori* calibration is important to achieve a valid calibration of the risk threshold value with which to distinguish between non-native species that pose a high risk of being invasive in the risk assessment area and those that pose a low-to-medium risk of being invasive. All future AS-ISK and TAS-ISK applications should provide complete justifications for the responses to all questions to ensure completeness of the screening for a certain species, provision of the report in any peer-reviewed publication resulting from the screening study, provision of a table indicating the sources of information (i.e. databases and other online resources) used for the *a priori* categorisation of the screened species, sufficient sample size for statistical analysis and threshold value computing and correct taxonomy and scientific names of the screened taxa.

Keywords: risk screening, non-native species, climate change, consensus screening, threshold value

Results of Risk Screening of Non-Native Species in the Western Balkans by Aquatic Species Invasiveness Screening Kit (AS-ISK)

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Abstract

Aquatic Species Invasiveness Screening Kit (AS-ISK) v.2.3 was used to assess the risk of invasiveness of some aquatic non-native (NN) species in Western Balkans. Species from each of the three Partner Countries (Albania, Bosnia & Herzegovina and Montenegro) and for the Program Balkans Countries (Croatia and North Macedonia) were selected. For the assessment, global AS-ISK thresholds for Basic Risk Assessment (BRA) and BRA + Climate Change Assessment (CCA) were used. A total of 23 species (10 freshwater fish, 2 marine fish, 2 freshwater invertebrates, 2 marine invertebrates and 1 freshwater plant species) were screened. Of the species screened, 11 ranked as very high risk (*Ameiurus melas*, *Ameiurus nebulosus*, *Carassius gibelio*, *Lepomis gibbosus*, *Neogobius melanostomus*, *Perca fluviatilis*, *Perccottus gleni*, *Sander lucioperca*, *Pacifastacus leniusculus*, *Physella acuta* and *Callinectes sapidus*). Although the risk scores were changed in 91.3% of species under climate change assessment, this affected the risk rankings of only one species: *Sander lucioperca* decreased in rank from high to medium. The outcomes of the present study, which identified 23 species for which full risk assessments are recommended, serves to inform the development of NN species policy and management in western Balkans.

Keywords: AS-ISK, Risk identification, Climate change, Decision-support tools

Results of the use of MaxEnt method to predict the distribution of non-native species in Western Balkans

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Abstract

Maximum Entropy method (MaxEnt) is one of the most widely used Species Distribution Model (SDM) algorithms relating species occurrence to corresponding environmental variables to estimate suitable habitats for a target species. MaxEnt method was used to investigate the potential distribution and habitat suitability of some aquatic non-native species present in Western Balkans region. A total of 23 species have been selected from each of the 3 Partner Countries (Albania, Bosnia and Herzegovina and Montenegro) and for the Program Balkans Countries (Croatia and North Macedonia). Species are the same as those selected for the risk assessment analysis using AS-ISK tool and belong to different taxa including freshwater and marine fish and invertebrate species, as well as a freshwater plant species. We found for all species a large expansion of the area in current and future scenarios. For example, the Lionfish, known to be a very invasive species in the Mediterranean Sea and in America, the results of modelling show a large expansion in the Mediterranean from the East to the West part and along the Atlantic American coasts. The freshwater fish *Lepomis gibbosus* shows a large probable expansion in temperate regions in America and mainly in Europe. In the south, where Mediterranean climate regions are observed the species could find suitable habitats especially in south America, south Africa and in Australia. The results obtained with models were included in the risk assessment screening (AS-ISK).

Keywords: Species Distribution Modelling, Maxent, Climate Change, Risk Assessment



Ali Serhan Tarkan

Ali Serhan Tarkan graduated in Fisheries at Ege University (Turkey) in 1999. He granted his PhD on Ecosystem Ecology at İstanbul University. Since 2015, Dr. Tarkan is enrolled at the Department of Freshwater Biology (Faculty of Fisheries) in MSKU (Turkey). His main interests are the life history traits, invasiveness, impact and risk assessment of non-native freshwater fish and the biological and ecological interactions between native and non-native species. He has been acting as Project Manager of an ongoing EU project that exactly fits to the subject of the present proposal: Addressing of invasive alien species threats in terrestrial areas and inland waters in Turkey. European Union Project – EuropeAid/139606/IH/SER/TR.

Marina Piria

Marina Piria graduated Agricultural Sciences at the University of Zagreb, Faculty of Agriculture in Zagreb, Croatia. At the same University she obtained a PhD in Fisheries in 2007. From 2017 she works as a full professor at the University of Zagreb, Faculty of Agriculture. She is involved in teaching undergraduate and postgraduate studies in several subjects related to fisheries, ichthyology and freshwater fish ecology and biology. Her main topics of research are fish ecology and biology with a focus on invasive and non-native fish species. Currently she is involved in several scientific projects related to fish invasiveness.

Daniela Giannetto

Daniela Giannetto graduated in Biology at Catania University (Italy) in 2006. After a MD in "Conservation of animal biodiversity" at La Sapienza University in Rome (Italy) and a MD in "Planning of integrated quality environment-safety systems according to ISO European standards" at Catania University (Italy), in 2012 she granted a PhD in "Biology and Ecology" at Perugia University (Italy). She carried out a postdoc at the Faculty of Fisheries and Aquaculture at MSKU (Turkey) and since 2014 she has been enrolled at the Department of Biology (Faculty of Sciences) in MSKU. Dr. Giannetto's research mainly deals with aquatic sciences, ecology of aquatic ecosystems; fisheries management; biodiversity conservation of aquatic ecosystems; fish biology and ecology; interactions between native and non-native species. Dr. Giannetto is member of several editorial boards of renowned international journals and committees and she is involved in several projects on conservation of aquatic biodiversity.

Rigers Bakiu

Rigers Bakiu is Associate Professor at the Department of Aquaculture and Fisheries since 2015, where he is also the Head of the Aquaculture Research Group from 2014. Actually, Rigers Bakiu is also the head of the Department of Aquaculture and Fisheries. In 2004, Rigers Bakiu graduated in Molecular Biology at the University of Padova (Italy), where he also performed his Master of Science studies on

Molecular Biology. Furthermore, at the University of Padova, from 2007 to 2010 Rigers Bakiu performed his PhD studies and he obtained the PhD certification on Biosciences. Rigers Bakiu continued with the post-PhD studies at the Department of Biomedical Sciences of the University of Padova from 2010 to 2012. Rigers Bakiu is the author of several students' text books and he has published more than 30 Scientific papers, where together with his colleagues from prestigious Universities 10 papers were published by impacted factor journals.

Azra Bakrač

Azra has worked since 1999 at University of Bihać, Biotechnical faculty. She participated in 24 projects and at eight of them she acted as coordinator. Four projects were funded by the European Union (Tempus and Erasmus). She actively participates in teaching on various topics but her main course is related to zoology. Her research is mainly focused on freshwater fish ecology, but she is also involved in the research of ecology of other aquatic systematic groups. She published more than 30 peer reviewed papers, three University textbooks and eight scripts with practicum.

Tuğba Uçma Uysal

Tuğba Uçma Uysal has a PhD degree in Accounting and Finance from Dokuz Eylül University in 2010 and since then she has been working in MSKU as a full-time professor. At the same time, she is the director of MSKU Research and Project Coordination Center. She has international and national journal articles, books and book chapters about Accounting and conducted many researches on Project Management.

Ceray Aldemir

Ceray Aldemir has a background education in Administration - Public Policy specifically education policies (PhD accomplished in University of Manchester-Manchester Business School). She studied and worked in Manchester Business School as a teaching assistant between 2008 and 2014. Currently she is working at MSKU Public Administration department as an assistant professor and vice-director of MSKU Research and Project Coordination Center. She possesses experience in project management and implementation.

Nikos Doumpas

Nikos holds a BSc by the Marine Science Department in the Aegean University in Lesvos island. He continues his studies in the Department of Biology in Aristotle University of Thessaloniki with a MSc in Aquaculture. He joined iSea in 2016 and in 2018 he became project manager of the Alien Species pillar and the citizen science project "Is it alien to you? Share it!!!". In 2019 he won the contest World of

Difference 2019 from Vodafone Foundation for the same project in order to increase the members of the Facebook group of the project and create informative material. Furthermore, he is the project manager of the project “Pick the Alien” that aims to inform the local community of Cyclades and Ionian islands and at the same time to promote the consumption of edible alien species as a mitigation measure.

Ana Pešić

Ana Pešić, works since 2007 as the senior scientific associate at the University of Montenegro - Institute of Marine biology, Kotor - UoM-IMB, in the Laboratory for ichthyology and marine fisheries. She graduated in 2007 at Faculty of Natural Science, University of Kragujevac, at Department for Ecology, and gained her PhD in 2011. at the Faculty of Biology, University of Belgrade. In more than 10 years of experience working in UoM-IMB, she has participated in a number of training courses and numerous national and international research projects, as project team member or a project coordinator. Her main topic of research is fish ecology and biology, estimation of population dynamics parameters of economic important fish species, biomass estimation, MSY (Maximum Sustainable Yield) and optimal fishing effort estimations, estimation of shared stocks of pelagic resources, allochtone species in fishery, biodiversity of marine resources, etc. As an author or coauthor she published over 50 papers at scientific journals and scientific conferences.

Nurçin Killi

Nurçin Killi graduated in Biology in Ege University in 2002. Then, she completed her MSc and PhD in Mugla Sıtkı Koçman University, Faculty of Fisheries in 2008 and 2013, respectively. She is working on ecology of marine zooplankton and gelatinous organisms, distribution and ecology of non-native jellyfish species and nematocyst morphology and venom effects of jellyfish species. She has worked on several national and international projects.

Guillaume Marchessaux

Guillaume is a marine ecologist specialised in the interactions between marine invasive aquatic species and human activities. He works on the ecophysiological aspects (environmental tolerance, trophic web) and the socio-ecological impacts of different species. After having worked on the ctenophore, hydromedusa, and invasive freshwater jellyfishes, Guillaume is currently interested in the socio-ecological impact of the blue crab and other non-indigenous species in the Mediterranean.

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