



XXVI Congresso AIOL

San Michele all'Adige, 27 giugno - 1 luglio 2022

Esperienze e approcci innovativi per la conoscenza e la salvaguardia degli
ecosistemi acquatici



Comitato Scientifico

Caterina Bergami, *CNR-ISMAR, Bologna*
Silvia Bianchelli, *Università Politecnica delle Marche, Ancona*
Mauro Celussi, *Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS), Trieste*
Diego Copetti, *CNR-IRSA, Brugherio (Monza-Brianza)*
Domenico D'Alelio, *Stazione Zoologica Anton Dohrn, Napoli*
Alessandra Pugnetti, *CNR-ISMAR, Venezia*
Michela Rogora, *CNR-IRSA, Verbania*
Nico Salmaso, *Fondazione E. Mach, Istituto Agrario di S. Michele all'Adige, S. Michele all'Adige (Trento)*
Cecilia Teodora Satta, *Università degli Studi di Sassari*
Monica Tolotti, *Fondazione E. Mach, Istituto Agrario di S. Michele all'Adige, S. Michele all'Adige (Trento)*

Comitato Organizzatore

Fondazione E. Mach, Istituto Agrario di S. Michele all'Adige, Unità Idrobiologia
Adriano Boscaini
Maria Cristina Bruno
Leonardo Cerasino
Ulrike Obertegger
Nico Salmaso
Monica Tolotti

Indice

Sommario

Indice	3
Programma	8
INVITED SPEAKERS	20
Cristiana Callieri	21
Rita Giuffredi	23
Michael W. Lomas	25
Federico Marrone	27
Dipartimento di Scienze e Tecnologie biologiche, chimiche e farmaceutiche, Università di Palermo	27
Mariangela Ravaioli	29
Mario Sprovieri	31
COMUNICAZIONI ORALI	33
SESSIONE SPECIALE - Effetti della pandemia da SARS-CoV2 sugli ecosistemi acquatici – Chair: Jacopo Chiggiato, Giuseppe Scarcella, Michela Rogora	34
Using machine learning to predict the effect of the 2020 COVID-19 lockdown on the biogeochemical properties of the Venice lagoon at selected sites	34
Evidence of Covid-19 lockdown effects on riverine dissolved organic matter dynamics provides a proof-of-concept for needed regulations of anthropogenic emissions.	34
Effects of the lockdown during Covid-19 Pandemic on the distribution of trace metals and PAH in the Venice Lagoon	35
Response of the Taranto Gulf (Ionian Sea, Italy) to the COVID-19 lockdown	36
COVID-19 lockdowns reveal the resilience of Adriatic Sea fisheries to forced fishing effort reduction.	36
Knowledge co-construction by citizens and researchers to create a SNAPSHOT of the marine environment during and after the Covid-19 lockdown	37
Underwater noise levels in the Northern Adriatic Sea during the COVID-19 pandemic period	37
COVID-19 lockdown affected atmospheric deposition and surface water chemistry over an Alpine area	38
The potential effects of COVID-19 lockdown and the following restrictions on the status of eight target stocks in the Adriatic Sea.....	39
SESSIONE SPECIALE - Gli studi ecologici di lungo termine per la comprensione delle risposte degli ecosistemi acquatici agli impatti antropici e climatici – Chair: Giuseppe Denti, Silvia Pulina	40
High altitude freshwaters: macroinvertebrates to the rescue.....	40
From metabarcoding time-series to plankton food webs.....	40
The European double heatwave in 2019: Chlorophyll-a response moderated by lake depth and trophic state	41

Do scientific dolphin watching influence cetacean's behaviour? The case study of the Levantine Aegean Sea (Eastern Mediterranean Sea).....	41
Lake oxygen and climate warming: the deep subalpine lakes in a global context.....	42
Long-term water temperature monitoring and the response of amphipod metabolic rate to climate change in Acquatina lagoon	42
Light transparency and chlorophyll-a influence the temporal and spatial differences of the under-ice microbiome	43
Synchronous trend signals of the water quality of Seveso, Olona and Lambro in half a century.....	43
Are phytoplankton a good indicator of climatic and anthropic impact? Hints from long term observations in the Gulf of Naples	44
Is plankton trophic structure a reliable indicator of the overall ecological efficiency?	44
Gli antichi strumenti della limnologia: dalla conservazione alla scoperta	45
Occurrence of cyanobacterial toxins in freshwaters of the Alpine region	46
Preliminary data on the effectiveness of fish passages from Toce River, the second largest tributary to Lago Maggiore	46
Gaia Blu, the new multipurpose ocean research vessel of CNR.....	47
Diversity and distribution of dragonflies in Italy, with an updated checklist.....	47
The Italian chapter of the Marine Social Sciences Network: an opportunity to make a difference in the complex and complicated relationship between society and the sea in the Mediterranean basin.	48
Genetic differentiation between the wild and hatchery Marble trout (<i>Salmo marmoratus</i> Cuvier 1829), and limited presence of released hatchery-produced individuals into the wild: a case study from Toce river (Piemonte, Italy).....	48
Plastic debris in freshwater systems worldwide	49
Vertical dispersion of microplastics in the marine environment. A modelling approach.....	51
SESSIONE SPECIALE - Processi fisici e biogeochimici in ambienti marini e d'acqua dolce: misure e modelli –	
Chair: Claudia Dresti, Diego Copetti, Andrea Fenocchi.....	52
Effectivity of hypolimnetic withdrawal on the restoration of Lake Varese.....	52
Modelling physical and ecological processes in medium-to-large deep European perialpine lakes: directions of past research and issues to address for the future.....	52
Long-term variability of the coastal ocean stratification in the Gulf of Naples: Two decades of monitoring the marine ecosystem at the LTER-MC site, between land and open Mediterranean Sea .	53
Multiple Stressor Effects on Ecosystem Function: Disentangling Effects of Eutrophication and Clogging on Nitrate Uptake.....	53
A simple model for predicting ice thickness in lakes.....	54
Resilience of plankton food webs to ocean warming	54
SESSIONE SPECIALE - Laghi artificiali, stagni e lagune costiere del Mediterraneo: una risorsa a rischio –	
Chair: Cecilia Teodora Satta, Federico Marrone	56
Trophic state and algal blooms in a southern Italy strategic multiple-uses reservoir (Lake Occhito)	56

The spreading of the global invader <i>Palaemon macrodactylus</i> Rathbun, 1902 and its interaction with congeneric native species in Venice lagoon (Italy).....	56
SESSIONE SPECIALE - Multidisciplinary and trans-ecodomain vision for the management and control of invasive alien species - Visione multidisciplinare e trans-ecodominio per la gestione e il controllo delle specie aliene invasive – Chair: Angela Boggero, Agnese Marchini	
How hydrology and topography drive exotic plants in annual vegetation of mid-size lowland rivers...	58
LIFE PREDATOR: a new EU LIFE Nature & Biodiversity Project to PREvent, Detect, combAT the spread of <i>Silurus glanis</i> in south European lakes to protect biodiversity.....	58
The validation case on invasive crustaceans of the LifeWatch ERIC Internal Joint Initiative: state of the art and next steps forward.	59
Behavior of the invasive mosquitofish increases top-predator fry mortality: preliminary results.....	60
The initial spread of quagga mussel, <i>Dreissena bugensis</i> Andrusov, 1897, in Italy: molecular and morphological evidence in Lake Garda	60
DNA metabarcoding as early warning and monitoring system for non-indigenous zooplankton species	61
The effects of the alien aquatic plant <i>Alternanthera philoxeroides</i> on the freshwater communities of the Arno River in Florence	61
Bio-pollution assessment of Lake Maggiore and its hydrographic system	62
SESSIONE SPECIALE - Il restauro degli ecosistemi: prevenire, arrestare ed invertire il degrado degli ecosistemi - Ecological Restoration: prevent, halt and reverse the degradation of ecosystems – Chair: Silvia Bianchelli, Antonio Pusceddu	
Following the roadmap for the restoration of Mediterranean Macroalgal forests: a case study from the Central Adriatic Sea	63
Displacement of hatchery trout in a small creek in Southern Switzerland: the role of water discharge	63
Moving waters: mitigating hydrological alterations while increasing hydropower production, a case study from the Italian Alps	64
Bioreactor capacity of sea cucumber <i>Holothuria tubulosa</i> (Gmelin, 1788) under different scenarios of climate change.....	65
The challenge of setting restoration targets across the Mediterranean Sea under climate changes: the case study of macroalgal forests	65
Restocking with wild caught farmed European eels: an alternative approach.....	66
SESSIONE SPECIALE - Aquatic microbiomes and microbial pathogens across the One Health spectrum – Chair: Grazia M. Quero, Ester M. Eckert	
Zooplankton influences extracellular DNA degradation and acquisition through natural transformation in freshwater microcosms	67
Host-associated and environmental microbiomes in a Mediterranean gilthead sea bream fish farm ..	67
Improving environmental monitoring of Vibrionaceae in coastal ecosystem through amplicon sequencing.....	68
Popstars in the Adriatic Sea: seasonal dynamics of the most abundant prokaryotes at C1-LTER station, Gulf of Trieste	68

Water masses age and origin drive the diversity of pelagic prokaryotes and dissolved organic matter dynamics: the Mediterranean Sea case	69
The sweet tooth of marine microbiomes: potential and expression patterns of prokaryotic glycosyl-hydrolases across the global ocean.....	69
Trends of fecal pollution along the coasts of Marche Region (Adriatic Sea) over a decade (2011-2021)	70
The role of intraspecific morpho-functional trait variability in marine phytoplankton responses to changing nutrient scenarios	70
POSTER	72
SESSIONE SPECIALE - Gli studi ecologici di lungo termine per la comprensione delle risposte degli ecosistemi acquatici agli impatti antropici e climatici – Chair: Giuseppe Denti and Silvia Pulina.....	73
A longitudinal study on bathing waters: bacterial investigation and <i>Ostreopsis cf ovata</i> dynamics combined with environmental variables in a highly touristic area (Sardinia, western Mediterranean) from 2015 to 2021.....	73
Effects of spring-summer water levels management on littoral macroinvertebrates of Lake Maggiore (NW, Italy).....	73
Multiannual zooplankton carbon and nitrogen stable isotopes for detecting changes in the Lake Maggiore (Italy) pelagic food web.....	74
High frequency monitoring (HFM) through in-situ sensors as a support to lake quality evaluation and management: insights from the INTERREG project SIMILE in Lake Maggiore	74
In-situ high resolution turbidity time series to describe storm resuspension events along the North-Western Adriatic shelf.....	75
SESSIONE REGOLARE – Chair: Leonardo Cerasino, Maria Cristina Bruno.....	76
The project “ROCK-ME: Geochemical response of Alpine Rock Glaciers to global warming: hydroecological consequences of trace element Export”	76
Environmental DNA as a tracer of the origin of sestonic organic matter in coastal systems	76
SESSIONE SPECIALE - Laghi artificiali, stagni e lagune costiere del Mediterraneo: una risorsa a rischio – Chair: Cecilia Teodora Satta, Federico Marrone.....	78
Use of otoliths for estimating age of <i>Mugil cephalus</i> L. destined to “bottarga” production in Tortoli lagoon (central western Sardinia, western Mediterranean).....	78
A metagenetic study on intestinal microbial communities of grey mullets from a Mediterranean coastal lagoon (Santa Giusta, Sardinia, Italy)	78
The ancient irrigation system of the Palermo Plain (Sicily, Italy) as a substitute ecosystem: preliminary investigations on its aquatic flora.....	79
SESSIONE SPECIALE – Multidisciplinary and trans-ecodomain vision for the management and control of invasive alien species - Visione multidisciplinare e trans-ecodominio per la gestione e il controllo delle specie aliene invasive – Chair: Angela Boggero, Agnese Marchini	81
Potential impact of dreissenids species in relation to the first report of quagga mussel (<i>Dreissena bugensis</i>) at the end of winter 2022 in Lake Garda (Northern Italy).	81
Invasive hell: potential distributions of invasive gammarids overlap in central Europe but not in South European coastal regions	81

eDNA detection of autochthonous and invasive freshwater crayfish in Trentino	82
Distribution and impacts of the invasive amphipod <i>Dikerogammarus villosus</i> (Sowinsky, 1894) in the river Adda (South Adda Regional Park, Northern Italy).....	82
SESSIONE SPECIALE - Il restauro degli ecosistemi: prevenire, arrestare ed invertire il degrado degli ecosistemi - Ecological Restoration: prevent, halt and reverse the degradation of ecosystems – Chair:	
Silvia Bianchelli, Antonio Pusceddu	84
REST-ART: RESToration of Marine Forests on ARTificial Reefs.....	84
SESSIONE SPECIALE - Aquatic microbiomes and microbial pathogens across the One Health spectrum –	
Chair: Grazia Marina Quero, Ester Eckert	85
Insights into salinity tolerance from a <i>Chlamydomonas</i> strain	85
EVER-LAKE: Formation, evolution and fate of new proglacial lakes in the deglaciating Alps	85
Does the biodiversity of high-altitude aquatic prokaryotes reflect the expected “Windows of opportunity” in deglaciating Alpine catchments?	86
Microbial pathogen detection in freshwater biomonitoring by amplicon sequencing: range of potential applicability.....	86
INDICE DEGLI AUTORI	88

SESSIONE REGOLARE – Chair: Leonardo Cerasino, Maria Cristina Bruno

The project “ROCK-ME: Geochemical response of Alpine Rock Glaciers to global warming: hydroecological consequences of trace element Export”

Maria Cristina Bruno (1)*, **Monica Tolotti** (1), **Stefano Brighenti** (2), **Francesco Comiti** (2), **Lorenzo Brusetti** (2), **Andrea Fisher** (3)

(1) Research and Innovation Centre, Fondazione Edmund Mach, Via E. Mach 1, I-38010 San Michele all'Adige, Italy

(2) Faculty of Science and Technology, Free University of Bolzano/Bozen, Piazza Università 1, 39100 Bolzano, Italy

(3) Institute for Interdisciplinary Mountain Research, Austrian Academy of Sciences, Innrain 25, 6020 Innsbruck, Austria

* email corresponding author: cristina.bruno@fmach.it

ROCK-ME is a 3-year project funded by the 4th Call of the EUREGIO Interregional Project Networks framework, started on April 1st 2022. The project addresses the effects of climate change on the degradation of mountain permafrost. Thawing rock glaciers (RG) are becoming major hydroecological drivers in numerous deglaciating Alpine catchments, as RG export cold waters often enriched in trace elements (TE). However, both the hydrological drivers and the ecological effects of TE enrichment on RG-fed streams and on the downstream river networks are almost entirely unknown. The research questions investigated by ROCK-ME are: 1) Thawing RG export higher loads of TE than glaciers, relict RG and groundwater springs; 2) TE in RG-streams mainly originate from bedrock weathering, and a smaller amount derives from past/present atmospheric deposition; 3) TE export and its ecological effects vary at multiple timescales in relation to seasonal and long-term dynamics of permafrost thawing; 4) TE bioaccumulate in the stream foodweb; 5) RG microbial communities influence TE bioavailability and toxicity; 6) thawing RG release heavy metal resistance genes. Three Alpine catchments with different proportions of glaciers and RG cover will be investigated with an integrated approach combining geomorphological/geochemical analysis, hydrological monitoring and modelling, ecological and genomic characterization.

Environmental DNA as a tracer of the origin of sestonic organic matter in coastal systems

Viviana Di Tuccio (1)*, **Luca Russo** (1,2), **Gabriele Del Gaizo** (1,3), **Daniele Bellardini** (1), **Francesca Margiotta** (3), **Pasquale De Luca** (3), **Domenico D'Alelio** (1) and the **NEREA team** (1,3)

(1) Department of Integrative Marine Ecology, Stazione Zoologica Anton Dohrn, Villa Comunale, 80121, Naples, Italy

(2) PhD Programme in Evolutionary Biology and Ecology, Department of Biology, University of Rome “Tor Vergata”, Rome, Italy

(3) Department of Research Infrastructures for Marine Biological Resources, Stazione Zoologica Anton Dohrn, Villa Comunale, 80121, Naples, Italy

* email corresponding author: viviana.dituccio@szn.it

Environmental DNA (eDNA) study in aquatic sciences is becoming useful not only for biodiversity assessment but also for environmental management. During the project FEAMP-ISSPA, the augmented ocean observatory NEREA, and the programme ASSEMBLE+, we collected and analyzed eDNA from marine water samples in several sites and across an annual cycle in the Campania region (Italy) and used these data as tracers of the origin of sestonic organic matter in coastal systems (e.g., riverine vs. offshore). Water was sampled at different depths, ranging -800 and 0 m, from coastal stations and major river mouths to offshore stations and a deep submarine canyon. Metabarcoding (metaB) analysis targeted the ribosomal RNA (rRNA)