

MARINE BIODIVERSITY AND THE ONE HEALTH FRAMEWORK

Workshop at HCMR in Crete, 29th & 30th August

Everything on Earth is interconnected when observed closely. Animals, plants, microbes, and humans, both on land and in the sea, are constantly interacting. The One Health framework highlights that for humans to be healthy, the entire interconnected ecosystem must also be healthy, including all forms of life and their intricate relationships. Studying these connections is complex and challenging, particularly as changes occur at rates and scales that are difficult to measure.

Human perception often fails to detect gradual changes, yet we are causing alterations in ecosystems that can lead to sudden and catastrophic events. When certain thresholds, known as tipping points, are surpassed, ecosystems can collapse. This is already happening, leading to societal emergencies and severe impacts on human well-being and health that can be even more devastating than zoonotic diseases, which have traditionally driven the One Health approach.

In this context, we explore recent advances in -omics, biodiversity, and ecosystem research, technology and innovation, with a focus on aquatic microbial communities and the importance of research infrastructures in advancing the One Health framework.



Co-organized by LifeWatch GR & EMBRC GR



Marine Biodiversity and the ONE HEALTH framework

Venue: HCMR Crete, Seminar room 1st floor, central building

Day I: Thursday 29, August

Research Infrastructures on Biodiversity and Ecosystems; relevance to ONE HEALTH concept

Part I: LifeWatch

Chair Georgios Kotoulas

10:00 - 10:30 Alberto Basset

LifeWatch IT, University of Salento and National Research Council

LifeWatch ITA Common Facility; From Regional to European scale Biodiversity and Ecosystems eScience

10:30 - 11:00 Christos Arvanitidis

LifeWatch ERIC

LifeWatch ERIC; From European to Global Biodiversity and Ecosystems eScience

11:00 - 11:15 Niki Keklikoglou

IMBBC - HCMR

microCT at HCMR: applications and examples

11:15 - 11:30 Ioannis Rallis & Dimitra Mavraki

IMBBC - HCMR

Data Management under FAIR principles & the MedOBIS Platform

11:30 - 12:00 Coffee Break

Part II: ELIXIR EU

Chair Tsigenopoulos Constantinos

12:00 - 12:30 Babis Savakis

BSRC "Alexander Fleming" at BSRC "Alexander Fleming", University of Crete

ELIXIR EU: Addressing jointly medical and environmental eScience

12:30 - 12:45 Evangelos Pafilis

IMBBC - HCMR

MBGC: the Molecular Biodiversity Greece Community, a Network of Networks

12:45 - 13:30 ROUND TABLE DISCUSSION

13:30 - Lunch

DAY II: Friday 30 August 2024

Venue: HCMR Crete, Seminar room 1st floor, central building

**Marine Biodiversity and the ONE HEALTH framework:
Featuring recent advances in -omics, biodiversity, and ecosystem research**

09:00 - 9:15 Antonios Magoulas HCMR Director
Welcome and short presentation of HCMR

9:15 – 9:30 Georgios Kotoulas
IMBBC - HCMR
Meeting objectives

PART I: Biodiversity and Ecosystem Health
Chair Kyrpides Nikos

09:30 - 10:00 Alberto Basset
LifeWatch IT, University of Salento and National Research Council
“Biodiversity and Ecosystem Functioning under the ONE HEALTH concept”

10:00 - 10:30 Alexander Probst
Research Center One Health Ruhr, University of Duisburg-Essen
**“Can microbial biodiversity in river sediments compensate for anthropogenic stressors?
A microbiome perspective on ecosystem health of rivers”.**

10:30 - 11:00 Raquel Peixoto
KAUST, King Abdullah University of Science and Technology
“Microbial therapies to prevent biodiversity loss”

11:00 - 11:45 Coffee Break

PART II: Networks and Interactions in Microbial Communities
Chair Christina Pavloudi

11:45 - 12:15 Alexandre Soares Rosado
KAUST, King Abdullah University of Science and Technology
**“The Interconnectedness of Microbiomes from Extreme Marine Ecosystems and ONE
HEALTH”**

12:15 - 12:45 Haris Zafeiropoulos
KU Leuven, Karoline Faust group
**“Microbial interactions in communities: assessing through spatial co-occurrence
networks and metabolic modeling”**

12:45 - 13:15 Nikos Kyrpides
Joint Genome Institute, Lawrence Berkeley National Laboratory, USA
“Deciphering the principles of Microbial communities”

13:15 - 14:30 Lunch

PART III: Data Resources, Infrastructures and Omics Approaches

Chair Haris Zafeiropoulos

14:30 - 15:00 Evangelos Pafilis

IMBBC - HCMR

“Knowledge discovery from global metagenomic data resources and the scientific literature”

15:00 - 15:30 Christina Pavludi

EMBRC ERIC

“Essential Biodiversity Variables (EBVs) and Essential Ocean Variables (EOVs) estimated using data from -omics observation networks: can EMO BON be an example?”

15:30 - 16:00 Christos Arvanitidis

LifeWatch ERIC

“Overview on Biodiversity Data discoverability, accessibility and integration - closing remarks”

16:00 - 16:30 Coffee Break

16:30 - 17:30 ROUND TABLE DISCUSSION

17:30 - 19:00 CretAquarium visit

19:30 Dinner at “Kontra Flokos”