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ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
DIPARTIMENTO DI SCIENZE BIOLOGICHE,
GEOLOGICHE E AMBIENTALI



LAUREA MAGISTRALE
IN BIOLOGIA MARINA

Census of Marine Mediterranean Benthic biodiversity: an integrative metabarcoding approach (CoMBoMed)

Ravenna, 11-14 February 2019

Sala Conferenze, via degli Ariani 1

Biodiversity protection is now recognized as a planetary challenge. Mediterranean marine benthic communities are one of the most threatened habitats owing primarily to human disturbances. In the context of increasing human pressures, this requires spatial and temporal monitoring of the species composition of communities. Hard substrates generally shelter a much higher biodiversity because of their higher structural complexity. Mediterranean biogenic reefs, occurring in lower subtidal or twilight Mediterranean benthic environments (between 20 and 200 m depth) are considered one of the most valuable and diverse habitats. Moreover, up to now, more than 80% of the Mediterranean species inhabiting these habitats are currently unknown. Cryptobenthic species, living hidden in crevices among rocks, and being genetically distinct but morphologically similar are among the more unknown species. Molecular methods, particularly DNA barcoding and metabarcoding approaches, hold great potential to understand species richness and, thus, to monitor biodiversity. Sometimes, this fast and easy next generation sequencing tools exceed the often slow and difficult taxonomic sorting of morphospecies, whose difficultness is even greater for cryptic species. On the other side, approaches that use universal barcoding databases (BOLD-System, Genbank) to match barcode queries may lead high percentages of missing data, such as errors in the assignment. Integrative taxonomy is a crucial tool to prevent both these errors and to create a local database to be used in developing effective biodiversity monitoring through metabarcoding. CoMBoMed aims to foster a new European working group able to combine molecular species identification with morphological identification to develop an exhaustive Mediterranean macrobenthic inventory database that could integrate and improve the universal barcoding databases and the biodiversity and biogeographic databases. In particular, CoMBoMed aims to: 1) Identify the gaps and conflicts among taxonomic and barcoding databases and how to fill them through the integration of different expertise and through implementation of local integrative databases and inventories of species inhabiting subtidal Mediterranean habitats and 2) foster an awareness of the importance of conservation of Mediterranean marine benthic biodiversity through outreach activities mainly focused on young people.



Organised by Dipartimento di Scienze Biologiche, Geologiche ed Ambientali (BiGeA), University of Bologna and by Centro Interdipartimentale di Ricerca per le Scienze Ambientali in Ravenna (CIRSA)

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DI RICERCA PER LE SCIENZE AMBIENTALI

WEDNESDAY 13 FEBRUARY

Sala Conferenze – Dipartimento di Beni Culturali

Discussion about EU Horizon 2020 call. We will discuss the inclusion of other possible scientific and not scientific figures (sociologists, private organizations, SME) and will produce a draft programme (including identification of additional partners, and assignment of tasks for the subsequent proposal agreement).

9:00 -10:30 Organization

10:30-11:00 Coffee break

11:00-12:45 Organization

12:45-14:15 Organized Lunch (provided by CoMBoMed, Giardino Pensile)

Discussing the outline for an integrative benthic taxonomy summer school, including people involved, venue and date (summer 2020).

14:15-15:15 Discussion

15:30-18:00 Guided visit to San Vitale and the mosaics

20:00 Free Dinner

THURSDAY 14 FEBRUARY

Sala Riunioni secondo piano – Dipartimento di Beni Culturali

Organization of activities in each country of the participants for the World Biodiversity Day 2019.

9:00 -10:30 Organization

10:30-11:00 Coffee break

11:00-12:45 Project/paper proposal discussion groups

12:45-13:00 Conclusion

13:00 Organized Lunch (provided by CoMBoMed, Giardino Pensile)

Milestones:

1. Identify the gaps and conflicts among taxonomic and barcoding databases and how to fill them through the integration of different expertise and through implementation of local integrative databases and inventories of species inhabiting subtidal Mediterranean habitats. These databases will be used in a metabarcoding approach for an easy, fast and standardized spatial and temporal biodiversity monitoring.
2. Foster an awareness of the importance of conservation of Mediterranean marine benthic biodiversity through outreach activities mainly focused on young people. Activities will include fieldwork and recreational activities that are designed to discover species inhabiting subtidal habitats.
3. Build up a Mediterranean multidisciplinary team covering a range of taxonomic barcoding expertise to train the next generation of integrative taxonomy scientists.
4. Draft a Horizon 2020 proposal aimed at training next generation taxonomic experts able to create, test and analyze innovative methods for the monitoring of the marine biodiversity.

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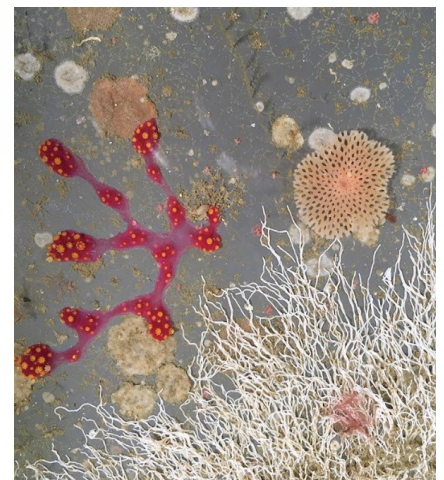
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Sala Conferenze, via degli Ariani 1, Ravenna



MONDAY 11 FEBRUARY

Sala Conferenze – Dipartimento di Beni Culturali

14:30-15:00

Welcome: Introduction to the workshop

Federica Costantini (University of Bologna, BiGeA and CoNISMa, Italy), **Marco Abbiati** (University of Bologna, DBC and CoNISMa, Italy), **Anne Chenuil** (CNRS, IMBE - UMR7263, France)

Setting the baseline of knowledge of the inventories of subtidal macrobenthic species in the Mediterranean Sea. Each participant will provide a brief presentation describing their expertise, and a preliminary inventory of their specific taxa of interest present in the Mediterranean Sea.

15:00-15:15

Laetitia Plaisance (National Museum of Natural History, Smithsonian Institution, USA)

Multimarker Metabarcoding to Investigate Changing Coral Reef Biodiversity

15:15-15:30

Kenan Matterson (National Museum of Natural History, Smithsonian Institution, USA)

Multi-loci metabarcoding of ARMS communities: Technical challenges, practical considerations and bioinformatics approaches

15:30-15:45

Marzia Bo (Università di Genova, CoNISMa, Italy)

Cnidarians: case-studies supporting an integrative taxonomic approach

15:45-16:00

Daniel Martin (Centre d'Estudis Avançats de Blanes CEAB - CSIC, Spain)

Polychaetes associated to hydrocarbon-enriched bottoms off Congo (West Africa)

16:00-16:30 Coffee break

16:30-16:45

Xavier Turon (Centre d'Estudis Avançats de Blanes CEAB - CSIC, Spain)

Issues in metabarcoding hard-bottom benthic communities

16:45-17:00

Giorgio Bavestrello (Università di Genova, CoNISMa, Italy)

Phenotypic plasticity and species determination in sponges

17:00-17:15

Owen Wangensteen (Norwegian College of Fishery Science, Norway)

Bye bye barcoding, welcome mitogenomes: HTS strategies to build new biodiversity reference databases

17:15-17:30

Maria Capa (Universidad de les Illes Balears, Spain)

Systematics and Biodiversity Assessments – focusing on Annelida

17:30-18:00

Olivier De Clerck (University of Ghent, Belgium)

Seaweed diversity in Europe – what do we know and what should we really know by now after three centuries of research?

20:00 Free Dinner

TUESDAY 12 FEBRUARY

Sala Conferenze – Dipartimento di Beni Culturali

Continue talk presentations

9:15-09:30

Jose Miguel Gutierrez (TAXON Estudios Ambientales S.L., Spain)

Taxon Estudios Ambientales: from research to practice

9:30-9:45

Barbara Mikac (University of Bologna, BiGeA, Italy)

Diversity of polychaetes in the Adriatic Sea and the importance of regular taxonomic updating

9:45 -10.30

Fabio Bertasi e Loretta Lattanzi (ISPRA Istituto per la Protezione e la Ricerca Ambientale, Italy)

Can a network of zoological collections help in standardize taxonomic knowledge of benthic macroinvertebrates and support the development of a comprehensive barcoding database?

10:30-11:00 Coffee break

11:15-11:30

Marc Rius* (University of Southampton, UK)

Unravelling the consequences of the redistribution of marine coastal biodiversity using high throughput sequencing

11:30-11:45

Ana Riesgo and Andrea Waeschenbach* (Natural History Museum, UK)

The use of genomic resources to understand biodiversity, evolution and adaptation in warming seas

11:45-12:00

Eva Turicchia (University of Bologna, DBC) and **Massimo Ponti** (University of Bologna, BiGeA and CoNISMa)

How citizen science may support the census of Mediterranean marine life?

A plenary discussion will follow aimed at identifying to distillate the key points highlighted in the preceding presentations and how we can implement the Mediterranean/Local reference databases.

12:00-12:45 Paper discussion groups

12:45-14:15 Organized Lunch (provided by CoMBo-Med, Giardino Pensile)

Opinion paper will be drafted that outlines the priorities and guiding principles that underlie the development of an effective biodiversity monitoring methodology through the creation of omnicomprehensive barcoding databases.

14:15 -15:45 Paper discussion groups

15:45-16:15 Coffee break

16:15-17:30 Paper discussion groups

20:00 Dinner at Ca de Ven (Sponsored by Fondazione Flaminia)

* join us by Skype