EOSC Activities in the Biomedicine and Life Sciences community

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Ibergrid, 2022 - The 11th Iberian Grid Conference
Universidade do Algarve, Faro, Portugal
10th - 13th October 2022

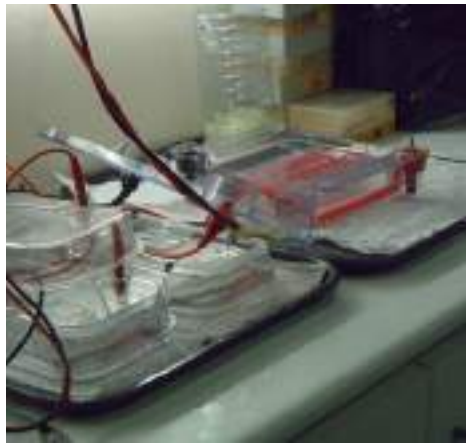
Centro de Ciências do Mar (CCMAR), host and partners

IPMA
Instituto Português do Mar e da Atmosfera

UAlg
UNIVERSIDADE DO ALGARVE

CCMAR
Centro de Ciências do Mar
Algarve



Core Activities

RESEARCH
Our ocean, our future:
understanding, protecting and exploring

TRAINING
Training scientists to meet the
challenges of today and the future

BUSINESS
Developing the Blue Economy
through research and innovation

SOCIETY
Delivering science for society to support
education, policy and conservation

COLLABORATION
Enhancing research capacity with
partnerships and collaborations

European Infrastructures

EOSC Projects

European Marine Biological Resource Centre

Our planet's richest biodiversity
lies beneath the waves -
EMBRC makes its exploration possible

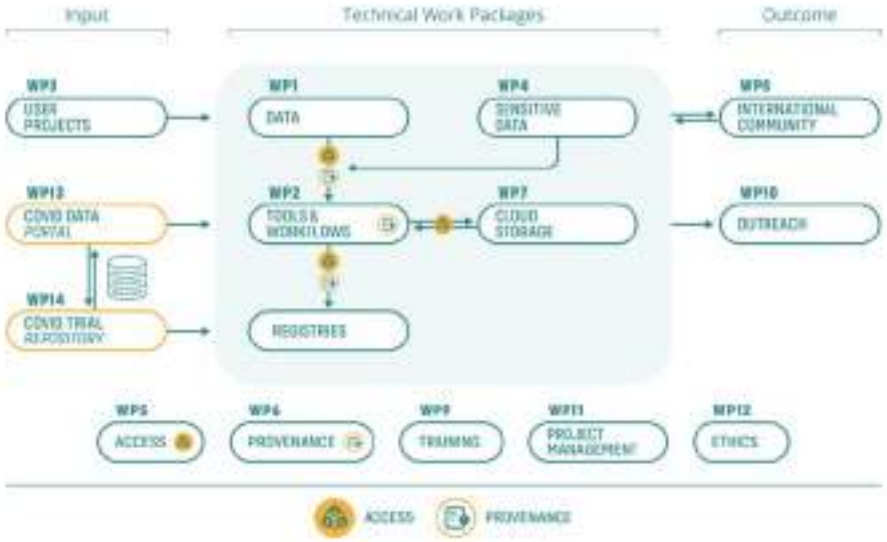
EOSC-Life - *Providing an open collaborative space for digital biology in Europe*

- H2020 INFRAEOSC-04-2018-2020 - Research and Innovation Action (RIA)
- Started 03/2019 – due to finish 08/2023 (extension)
- 69 participants, 13 pan-European RI's, 14 countries
- Total funding: 26,145,996.25€

EOSC-Life

EOSC-Life - *Providing an open collaborative space for digital biology in Europe*

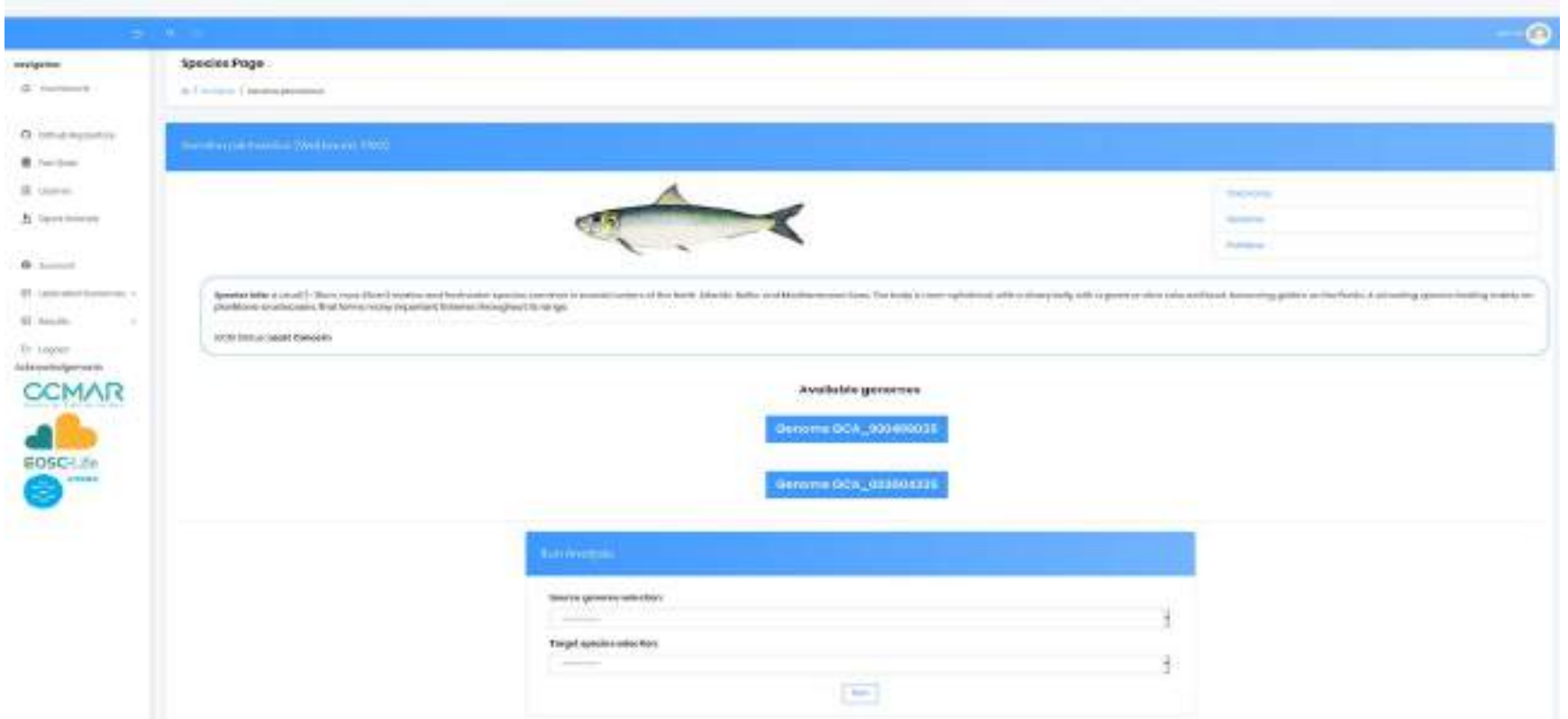
- Create an open digital space for life science and biomedical research
- Publish FAIR data and catalogue of services in the EOSC
- Implement interdisciplinary workflows
- Develop tools and workflows via funded projects
- Address policies and standards for sensitive data (human medical)
- COVID (rapid crisis reaction) – data portal and repository



EOSC-Life

EOSC-Life - *Providing an open collaborative space for digital biology in Europe*

Work Package 3, Demonstrator Projects, D4: *Marine Eukaryote Genomics Portal – access to tools and data-flows for marine genome annotation*

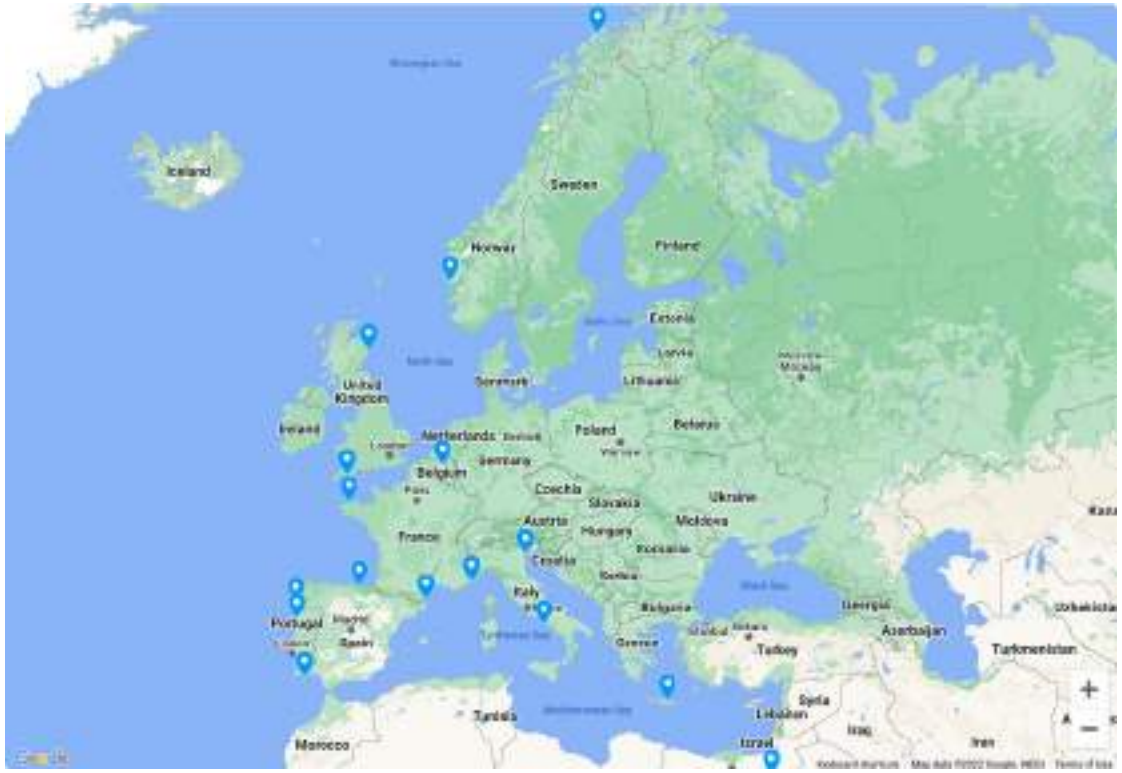


GFFAlign workflow (Galaxy Toolshed) – in collaboration with Roscoff Marine Station, France

EMBRC - EMO BON

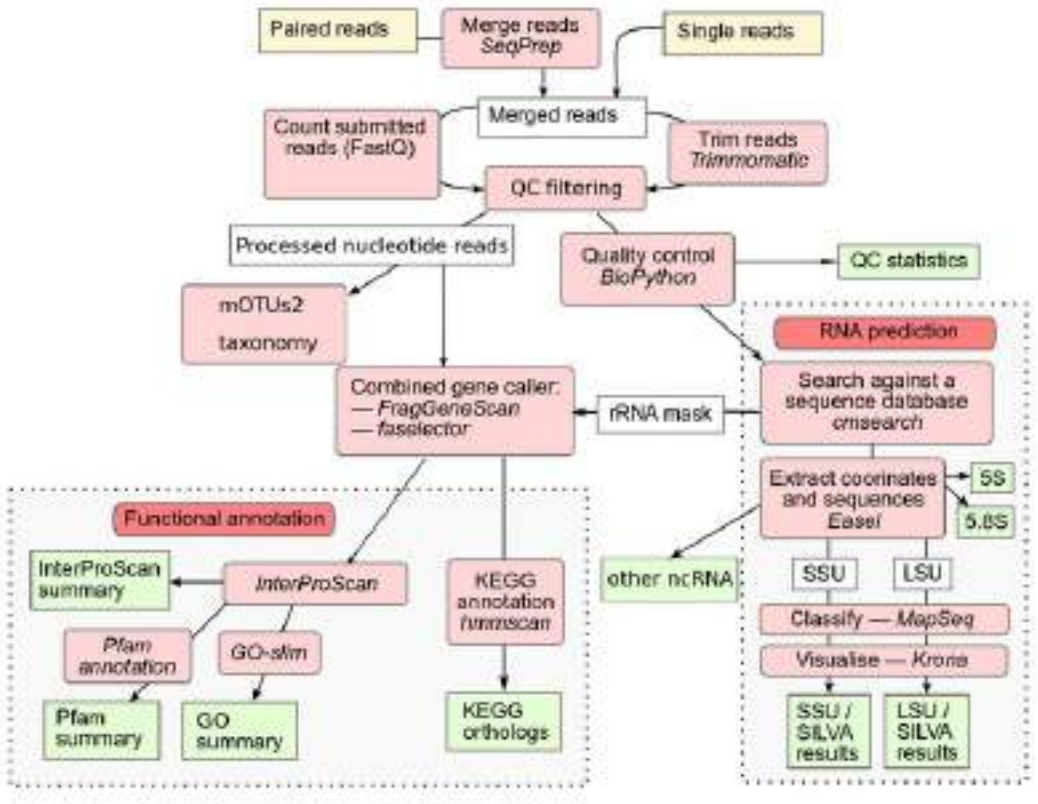
- Understand marine ecosystem services supported by microorganisms
- Sample microbial marine biodiversity (eDNA metagenomics), EOVs, and EBV's
- Standardisation: SOP's, common analytical workflows, FAIR, published DMP
- RO-crate data products: raw sequence data, taxonomic inventories, community gene function profiles, metadata

EMO BON
EUROPEAN MARINE OMICS
BIODIVERSITY OBSERVATION NETWORK



EOSC-Life Open Call 1

- "*A workflow for marine Genomic Observatories data analysis*"
- Collaboration between EMBRC and ELIXIR.uk (EMBL-EBI MGnify team)
- Data analysis and provenance (metadata) workflows
- Generate taxonomic inventories and community gene function profiles – RO-Crate data products
- TRL 4/5 (Technology Validated in Lab/Relevant Env.)



The first interdomain digital architecture for integrated use of environmental data

Pilot 5.3.1

Marine Omics Observation

T.5.3 Use Case 3

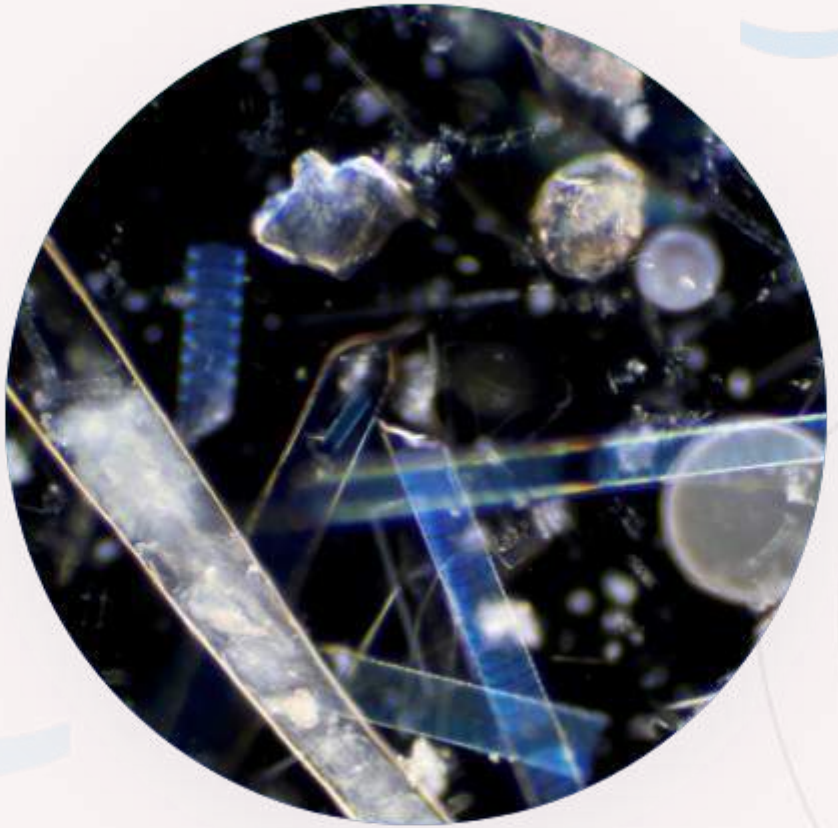
Biodiversity Observation

Cymon J. Cox CCMAR/PT, Christina Pavloudi HCMR/GR, Katrina Exter, Marc Portier VLIZ/BE, Maria Luisa Chiusano UNINA/SZN/IT, and Alice Soccodato, Ioulia Santi EMBRC-HQ/FR

Funded by the European Union

FAIR-EASE WP5 Use Case

- Pilot 5.3: Marine Omics Observation
- Using EMO BON RO-crate data products:
  - Virtual Research Environment
    - Data dissemination
    - Data visualisation
    - Data analysis (interoperability)
  - Cloudification
  - EOSC integration/sustainability
- TRL 7 (Operational Service) for inclusion in EOSC-L services catalogue (within Blue Cloud?)

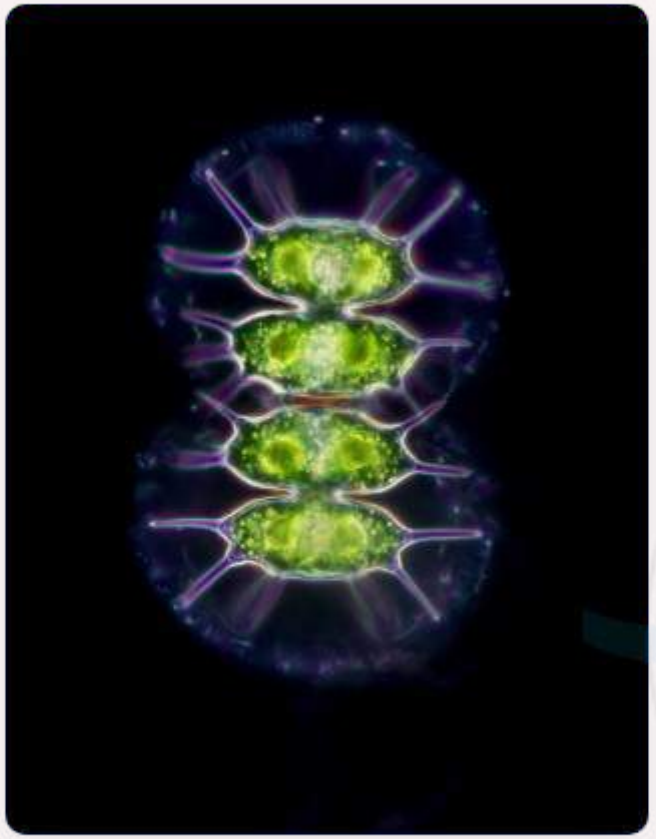


Virtual Research Environment

- Interrogate EMO BON data products in RO-Crates, among sites, and through time (campaigns), links to raw data, sample, and workflow metadata
- Visualise and compare community composition and gene function profiles
- Correlate with EOVs/EBV’s
- Re-run analytical workflow on subsets of data
- Possible exemplar services:
  - Gene discovery/bioprospecting
  - Indicator/sentinel species/communities
  - Water quality evaluation / algal bloom prediction

VRE – data interoperability

- Machine-operable access via API's
- Interoperability
  - Biogenomics/proteomics/metabolomics (EMBL-EBI)
  - Taxonomic/distribution, biodiversity (WoRMs/GBIF/OBIS/Lifewatch)
  - Ocean physics, biogeochemistry, bathymetry, etc (SeaDataNet/Cloud, Euro-Argo, CMEMS, EMODNet)
  - Imaging (Euro-Bioimaging)
  - Spectral heterogeneity (remote sensing), weather/climate
  - many others



EOSC-Association Advisory Groups and their Task Forces

5 **Advisory Groups** help steer the implementation of EOSC

Within each AG there are **Task Forces** (13 in all) to help address key areas of implementation

AG - Research Careers and Curricula

TF - Upskilling countries to engage in EOSC

”Any activity required to improve engagement with EOSC – policy development, infrastructure, investment in skills, and education”

BioData.pt|ELIXIR.pt “Data Stewardship” course

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Thanks for your attention – I'm happy to answer any questions (if there is time)

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