

MARCO-BOLO WP5 workshop

- workflows to be built –

April 2024

Summary Report - Milestone 7



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Report of MARCO-BOLO WP5 workshop on workflows to be built.

April 2024

Summary of the Workshop

A virtual workshop was held on the 5th of April 2024 to discuss the workflows that will be created for key analytical processes as part of MARCO-BOLO Work Package 5, which centres on Modelling & Mapping Coastal and Marine Biodiversity. The workshop was organised by VLIZ and LifeWatch ERIC and saw the participation of all collaborating partners.

The workshop included an introduction to the infrastructure of Virtual Research Environments (VREs) and a demonstration of currently developed workflows. Current project developments to reproduce real-world applications were presented for each of the tasks and subtasks in the Work Package, including:

- Task 5.1 *Detection and analyses of biodiversity trends*, is working on multiple workflows to understand long-term biodiversity trends, including (1) time series analysis, where data from open online databases and data providers will be used to evaluate temporal trends in taxonomic and functional community metrics, (2) habitat suitability modelling, where a workflow is being developed to predict habitat suitability for target protected species based on ensemble models that consider key environmental parameters, and (3) determining causal relationships based on machine learning modelling approaches to understand the relationship between external forces and biological systems;
- Task 5.2 *Application of integrative approaches on established biological indicators*, is working on the workflows to calculate Pelagic Habitat indicators used in the Marine Strategy Framework Directive (MSFD) using plankton imaging and environmental DNA data flows;
- Task 5.3 *Spatial mapping of Blue Carbon benefits* is exploring the link between *in situ* seagrass observations and remote sensing evaluations of Blue Carbon storage;
- Task 5.4 *Mapping the impacts of Non-Indigenous Invasive species on European coastal and marine habitats, based on multi-disciplinary approaches*, has developed a workflow to identify non-indigenous invasive species based on metabarcoding approaches, cross-referenced against the World Register of Invasive Marine Species (WRIMS), as well as the workflow to produce species distribution models based on this genomic information.

In conclusion, discussions were held regarding action items aimed at the seamless integration of these workflows within the VRE framework in the upcoming stages of the MARCO-BOLO project.



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