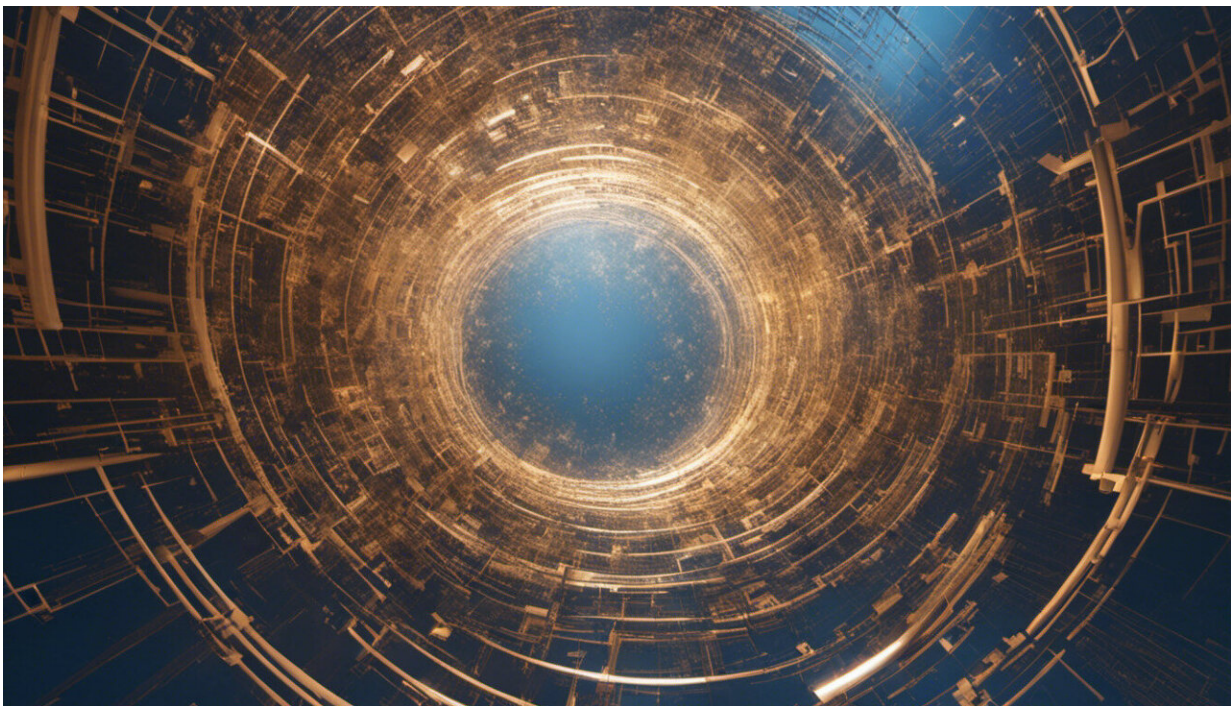


A virtual platform for data access, analysis and publication helps shape Blue Growth

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Credit: AI-generated image ([disclaimer](#))

Blue Growth is the term applied to the long term strategy for sustainable growth in the marine and maritime sectors. The EU-funded BlueBRIDGE project has helped build the necessary knowledge infrastructure for workflows and informed decision making across domains.

The potential that seas and oceans hold out for increased European economic growth and innovation, is recognised by the EU's 2020 strategy for smart, sustainable and inclusive growth. The Blue Growth strategy includes developing sectors likely to result in sustainable jobs and growth (e.g. aquaculture), ensuring international cooperation and enabling the cultivation and sharing of knowledge and expertise.

The EU-funded BlueBRIDGE project was set up specially to address this last objective, through the leveraging of pre-existing data and e-infrastructures to generate knowledge products and their dissemination. The project team developed 66 web-based platforms, referred to as 'Virtual Research Environments' (VREs), each giving access to tailored data and services providing a better understanding of the marine and maritime environments, their living resources and economies.

Virtual Research Environments

The development of the VREs required collective expertise. This included: administrators operating the e-infrastructure; software developers implementing data management and application specific services; VRE managers designing and administering the environments for common goals; and scientists/educators to collaborate on scientific activities and share research outcomes.

These VREs were designed to support the informed decision making, processing effectiveness and innovations of a wide variety of marine and maritime stakeholders, including scientists, data managers, educators, policy-makers and the private sector.

Each VRE is dedicated towards reaching a specific goal. For example, one VRE included data and tools to help stakeholders assess the protection of specific fish species and establish fishing quotas. Another VRE enabled performance evaluation and benchmarking in the

aquaculture sector, increasing competitiveness through maximised growth rates, reduced costs and minimised environmental impact. Yet another VRE generated indicators to help countries plan marine protection efforts or to track aquatic activities and biodiversity conservation.

Project coordinator Dr. Donatella Castelli stresses the impact that VREs can also have in the educational sector, "The usage of e-infrastructure enabled VREs demonstrated the smooth and rapid transfer of scientific results from the research and business sectors for high quality and up-to-date educational activities. It offers students access to remote computational facilities and to the necessary datasets, analysis and visualisation tools to learn, conduct and repeat experiments."

The data diet for Blue Growth

The BlueBRIDGE project provides accurate, timely data and knowledge products across the biological, environmental and socio-economic domains. As Dr. Castelli summarises, "We haven't covered all data needs but with our e-infrastructure solution, in collaboration with international organisations, we have helped harmonise and analyse data which enables users to make informed decisions across research boundaries."

Scientists have already exploited the BlueBRIDGE VREs to deliver new products which are now accessible to others, free of charge. One example is the Global Record of Stocks and Fisheries, an effort coordinated by the United Nations Food and Agricultural Organisation (FAO), for a uniform and global view of fisheries information. In the near future, this data will contribute to informed consumption based on the provenance and sustainability of produce.

The e-infrastructures were managed according to FAIR principles making the data Findable, Accessible, Interoperable and Reusable for all

interested parties. This was in large part possible through the transparent use of metadata standards and protocols and through solutions outlining data provenance and supporting the repeatability of experiments.

In line with the Open Science vision, BlueBRIDGE also promoted collaboration, sharing and the reuse of any research product, including data, algorithms, tools, workflows, and services, and is ready to join the upcoming European Open Science Cloud.

Looking to the future, the VREs that have already been delivered and are operational will continue to be maintained. Beyond this, the team are currently negotiating at least five Service Level Agreements (SLAs) for global communities to exploit VREs for Marine Knowledge and Maritime Spatial Planning. New VRE efforts will be dedicated towards supporting Stock Assessment methods when only poor data is available, alongside further study of climate change impacts on fisheries.

Provided by CORDIS

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