

iMARINE: SCIENCE DRIVEN POLICY INFORMATION MANAGEMENT LEVERAGING A DISTRIBUTED E-INFRASTRUCTURE

CONTACT DETAILS:

PROJECT NAME: iMarine, Data e-Infrastructure Initiative for Fisheries Management and Conservation of Marine Living Resources

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Objectives

Today, scientists need complex models to analyse multidisciplinary data in diverse formats and with wide temporal and spatial scales, highly demanding computing and virtual organisations supporting collaborative work. Biodiversity scientists and policy-focused organisations are no exception. These different specialists need to accelerate discovery and analysis to meet Ecosystem Approach (EA) policy making and management challenges.

iMarine (www.i-marine.eu) provides a cutting-edge open e-infrastructure that is both user-friendly and fully transparent, designed to support a wide variety of specialist communities. By coming together in a single “community of practice” (CoP), sharing data and knowledge within iMarine, they can collectively develop tools and information to advance the adoption of an ecosystem approach for the integrated management of marine living resources.

iMarine is an initiative aimed at supporting the implementation of the Ecosystem Approach to fisheries management and the conservation of living marine resources. To achieve its objectives, iMarine provides a data e-infrastructure that facilitates open access and the sharing of a multitude of data, collaborative analysis, processing and mining processing, as well as the publication and diffusion of newly generated knowledge. This is a complex process because it requires coordination with many actors and initiatives across different scientific and operational domains. It also needs to tackle data heterogeneity while relying on a multitude of resources and technologies, some of which are not yet ripe or powerful enough to meet the given requirements.

On-going activities:

The iMarine Board helps to guide iMarine’s strategic goals by acting as its governance body and by representing different target communities. These communities come from different domains within the Ecosystem Approach to fisheries management and conservation of living marine resources. Board Members contribute by sharing business cases, helping to define standards, offering advice on the policies that iMarine should support and on sustainability issues as over the next few years, data infrastructures like iMarine need to make the transition from pilot or prototype to a service-oriented offer with long-term sustainability.

The iMarine data e-Infrastructure is being operated, monitored, and maintained as a 24/7 service based on the policies established by the Board for the whole duration of the project and beyond, supplying services capable of supporting the typical business cases that arise in applying the EA approach. iMarine deploys a number of VREs offering advanced facilities, ranging from statistical management of socio-economic data, including data on aquatic ecosystems and monitoring of vessels, fleets, and activities, to management, transformation, and visualization of different types of marine biodiversity data including species data and taxonomies. CoP members are able to exploit these facilities on-demand either programmatically or

through innovative applications. The e-Infrastructure provides these services by leveraging services provided by other existing e-Infrastructures.

Results:

The iMarine Board members have been very active in identifying requirements and validating solutions. In the course of the project the focus of their activity has progressively shifted towards reviewing and commenting the Data Access and Sharing policy document produced by the project partners and on identifying appropriate models for assuring the sustainability of the infrastructure and its governance.

The Board members also largely contributed to iMarine objectives by liaising with a wider EA-CoP. Numerous new collaborations and synergies have been established. Some of these collaborations have materialised through concrete financial support like in the case of the FAO SmartFish and Tuna Atlas projects.

The infrastructure was upgraded five times in order to deploy new components and enhancements and Site managers were involved in the installation of new nodes for the production infrastructure in order to run both gCube and third-party services. Several other components were also installed and configured to empower the e-Infrastructure for dealing with a richer set of resources, like a Cassandra cluster, a Virtuoso repository, a Thredds server and a number of CouchBase servers. Resources dedicated to the Hadoop and MongoDB clusters were extended and important databases, like FishBase and SeaLifeBase, were installed.

Work on the Virtual Research Environments has led to the operation of 15 cooperative environments aiming at serving various scenarios and, more than 500 users. The VREs are accessible through the iMarine gateway (<https://portal.i-marine.d4science.org/web/guest>)

URL: <http://www.i-marine.eu>