

LifeWatch marine data services supporting marine biodiversity and ecosystem research

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LifeWatch, a landmark research infrastructure on the ESFRI roadmap, is a cross-domain e-science infrastructure supporting biodiversity and ecosystem research. In the marine domain LifeWatch provides data services for a large and broad user community dealing with a variety of data types. Activities include provision of data tools and services for taxonomic, ecological, omics, biogeographic, environmental and various types of biological observation data. Specific data systems have been developed to serve the European and international marine research communities, in this context acting both as data providers and data users.

The tools for data archiving, access, quality control, standardization and harmonization, analysis and publication are integrated in a Marine Virtual Research Environment (Marine VRE). The Marine VRE provides a framework for service provision towards and co-development with the user community both within and outside the LifeWatch network (EMODNet, EMBRC, OTN, DISSCO, LTER, WoRMS (Eur)OBIS, IODE, iMarine, SeaDataNet, etc.).

Scientific use cases of the LifeWatch marine services that can be demonstrated include marine species distribution modelling, visualization of introduction of non-indigenous species and species migration, species traits based ecosystem indicators, etc. Various associated user stories evidence the crucial importance of e-science infrastructure like the LifeWatch taxonomic backbone and related reference data systems in the framework of contemporary large scale European marine biological research.

Keywords: -science; marine biodiversity; virtual research environment; data systems; species distribution modelling; non-indigenous species; species traits