

ECOSS

ECOlogical observing System in the Adriatic Sea: oceanographic observations for Biodiversity

https://www.italy-croatia.eu/web/ecoss

European Regional Development Fund

GENERAL INFORMATION

INTERREG ITALY-CROATIA PROGRAMME

"STANDARD" Calls for Proposals 2017

PRIORITY AXIS 3 – SPECIFIC OBJECTIVE 3.2 Contribute to protect and restore biodiversity

01/01/2019-30/06/2021





ECOSS

- ECOSS aims to provide an essential contribution for improving the conservation status of the habitat types and species of the marine Natura 2000 (N2K) sites in the Adriatic Sea
- ✓ The main outcome of ECOSS is the ECOlogical observing system in the Adriatic Sea, in short ECOAdS



MARINE OBSERVATORIES



Source JERICO

Marine Observatories (Mos) are globally widespread: they consist mainly of observing, monitoring and experimenting infrastructures conceived to monitor oceanographic variables and to assess the state and modifications of coastal and offshore sea in response to anthropogenic alterations and to the changing global climate



MARINE ECOLOGICAL OBSERVATORIES

A proper **integration between oceanographic and ecological research and monitoring** is key to build the knowledge needed to inform protected areas management and to support their conservation effectiveness



From MOs to Marine Ecological Observatories (MEOs), to incorporate ecological knowledge. MEOs should be built on 4 key principles:

- Open Science Approach
- Transnational Cooperation
- Knowledge Co-Production
- Harmonized Conceptual Framework











ECOAdS

- Integrate ecological and oceanographic research and monitoring with N2K conservation strategies
- Transnational cooperation, it will be shared between Italy and Croatia, to enhance the marine observational capacities and N2K network at the Adriatic scale
- It will respond to the requirements set out in diverse EU directives (MSFD, WFD, H&BD and EU Action Plan 2017), and in EUSAIR (Strategy for the Adriatic-Ionian Region) Action Plan











ECOAdS main components









ECOAdS – Structure in detail





ECOAdS – Structure in detail





EXISTING ECOLOGICAL MONITORING PROGRAMS AND OBSERVING SYSTEMS

In ECOAdS, we considered the research and monitoring sites and the fixed-point observing systems, located in the pilot study area and of which ECOSS partners are managers and/or direct scientific advisors



The Adriatic Sea hosts a number of **wellestablished monitoring programs**, acting at different spatial scales, from national to county/region level, and **fixed-point observing systems** (i.e. pylons, buoys, tide gauges, oceanographic platforms)

Most of the on-going monitoring observations are linked to the **fulfilment** of the obligations established by the EU Directives (mainly WFD and MSFD) or to specific programs and initiatives, e.g. Italian Long-Term Ecological Research network, LTER-Italy (www.Iteritalia.it)

EXISTING ECOLOGICAL MONITORING PROGRAMS AND OBSERVING SYSTEMS

In ECOAdS, we considered the research and monitoring sites and the fixed-point observing systems, located in the pilot study area and of which ECOSS partners are managers and/or direct scientific advisors



A wide variety of environmental issues is addressed, spanning from the assessment of the quality of transitional, coastal and marine waters to the monitoring of target species (e.g. dolphins and sea turtles) and other biotic components (e.g. plankton, macroalgae, coralligenous assemblages)

These initiatives are neither shared between the two countries nor focussed on N2K sites

ECOAdS - Structure





Natura 2000 (N2K) SITES



The N2K network of protected areas, both at land and at sea, is the main biodiversity conservation instrument in Europe. The network's legally binding basis are the Habitats and Birds directives, which set the same rules and obligations for all EU, even though the application of the legislation varies by countries

Source: European Environmental Agency













N2K SITES SELECTED IN ECOSS AS CASE STUDIES



Trezze San Pietro e Bardelli (IT3330009)
Tegnùe di Chioggia (IT3250047)
Po river delta (IT3270017 and IT3270023)
Cres-Lošinj (HR3000161)
Viški akvatorij (HR3000469)

6 Malostonski zaljev(HR4000015)

LUE WORLD INSTITUTI

Actions addressed in ECOSS

> Site description, protection status, management goals & objectives, monitoring activities

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- Review of the knowledge on the target species
- Review of the knowledge on the ecological processes
- Main gaps and limitations



ECOAdS - Structure





Ecological connectivity

Ecological connectivity: "the degree to which landscapes and seascapes allow species to move freely and ecological processes to function unimpeded" (UNEP, 2019)



From Manea, Bongiorni, Bergami, Pugnetti, 2020

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During their **life-cycle**, most plants and animals are largely dependent on more than one habitat and freely move from land to sea and back, as well as in the entire marine environment to accomplish their vital functions (e.g. feeding and breeding), in synergy with all the natural ecological processes (e.g. production and consumption of food and oxygen)



Ecological connectivity & ECOAdS

Connectivity becomes even more important in the **marine environment** where processes are highly interlinked, the complex life histories of most species have evolved adapting to the marine habitats, and many species are widespread

Integrate oceanographic and ecological research and monitoring at transnational scale is key to build the knowledge needed to assess the performance of protected areas and the impact of on-going environmental and human-induced changes on conservation strategies

Holistic approach is crucial for the development of ECOAdS



Source: Jupiter Research Foundation













3 How to connect and integrate: ECOADS conceptual model



- This model connects the ecological/oceanographic observing systems with the management of N2K network
- It highlights the role of ECOAdS in collecting ecological and oceanographic variables that feed performance indicators to assess if conservation objectives are achieved in N2K marine sites

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Responsible PARTNER: OGS

3 How to connect and integrate: ECOADS and the Directives

Assessment of the role of the main EU directives that deal with marine conservation: Habitats and Birds, Water Framework, and Marine Strategy Framework. They are one of the primary instruments that guide the development of the ECOAdS observatory: they strengthen the cooperation at the basin scale and potentially allow the integration of the connectivity concept within the governance and management systems.

A comparative analysis among these policy instruments has been addressed in ECOSS, based on diverse elements of comparison dealing with: the conservation objectives, the spatial application, their approaches to monitoring and reporting, and their efficacy in promoting the ecosystembased approach implementation



3 How to connect and integrate: ECOADS and the Directives

Main outcomes to foster the building up of ECOAdS as a monitoring platform that may respond and contribute to the requirements of the EU directives:

- Identification of synergies and discrepancies among the legal instruments to allow ECOAdS to boost the synergies and favour overcoming the weaknesses
- Comparison of the directives' monitoring frameworks and of the terminology and adoption of indicators to foster a harmonized and comparable approach to monitoring
- Integration of the existing local as well as global monitoring frameworks (Essential Ocean Variables, EOV, and Essential Biodiversity Variables, EBV) to foster a holistic and integrated approach to monitoring, supporting the construction and maintenance of long-time data series at the basin scale



ECOAdS - Structure





<u>4</u> ECOAdS: Stakeholder involvement

- ECOAdS needs to be designed and developed including a plurality of voices and a wide range of knowledge, beside the one that derives from scientific communities and methods
- Complex ecological and conservation issues require scientific evidence to be used alongside other types of knowledge in order to produce the best and most feasible solutions
- This calls for the development of a well-organized participatory process that, in the framework of ECOSS, started with three stakeholder workshops and that will be fostered further within the ECOAdS roadmap



<u>4</u> ECOAdS: Stakeholder involvement

Two online workshops with the stakeholders was held on September and December 2020. A third one will be held in June 2021

Target groups: governance, MPA managers and NGO, PhD students
Aim: starting understanding their visions about what could be the main needs, expectations and challenges in the design and development of ECOAdS





ECOAdS - Structure







ECOAdS

ECOlogical observing system in the Adriatic Sea



ECOAdS Portal aims at making available information and data relevant for ECOAdS, to support and inform Adriatic N2K network conservation. It builds on various information, data, observing systems, web platforms and portals that deal with elements of relevance for marine conservation purposes and N2K sites



ECOAdS after ECOSS: synergies and connection under development













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