Il contributo della modellistica nel progetto CASCADE

CASCADE| PP4 | Giaiotti Dario

Web Meeting | 28 September 2021

Modelling is one of the key approaches in CASCADE

Project overall objective

The CASCADE project overall objective is to **increase marine knowledge through** the consolidation of inland and marine waters monitoring (**observing and modelling**) tools to address environmental vulnerability, fragmentation, and the safeguarding of ecosystem services, to support the protection of marine ecosystems and to develop science-based restoration methodologies and actions to assess the impacts of extreme events on marine ecosystems. In particular, CASCADE will concretely contribute to biodiversity protection in several Natura 2000 sites also providing monitoring tools, best practices of restoration of endangered species and integrated management plans.

Project results

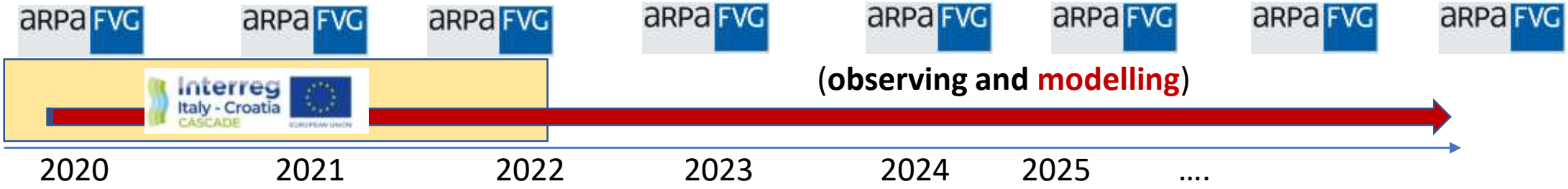
Three main results will be achieved:

1) **improvement and development of monitoring (observation and modelling) systems**;
2) access to monitoring data through an information system in support of pilots;
3) implementation of pilots focusing on restoration actions and improvement of integrated management systems (e.g. MSP, ICZM, LSI) of marine and coastal areas.

The driving concepts leading the modelling in CASCADE

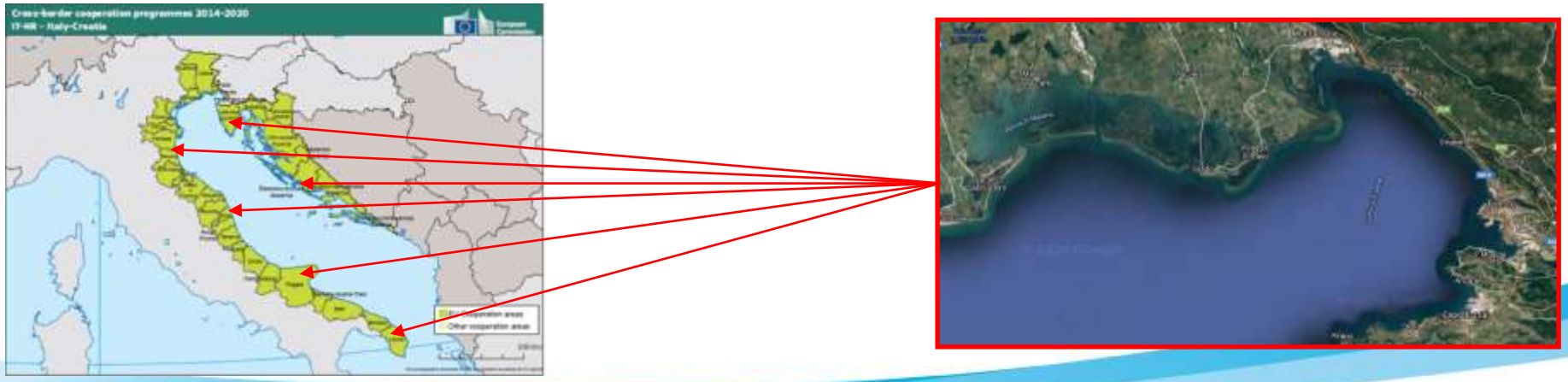
Outputs and results durability

The monitoring systems will be maintained in operation by relevant partners in line with their institutional duties and depending on additional funding after the project end.



Outputs and results transferability

CASCADE outputs and results are inherently scalable and transferable to other territories.



Modelling and observation synergy in CASCADE

WP 3 - Coastal Marine Environment characterization of (species and) ecosystems
Act 3.1 Review of existing **observing** and **modeling** systems
Act 3.2 Ecosystem characterization for each Pilot
Act 3.3 Design of the optimal observing systems for marine coastal environment characterization
Act 3.4 **Models design** for marine coastal environment characterization

WP 4 – Monitoring (observations and modelling) and information system
Act 4.1 Set up and testing of the observing system
Act 4.2 Set up and testing of the integrated modelling system
Act 4.3 Information system for observation, model validation and product delivery

WP 5 - Pilots for endangered species restoration and Integrated coastal/marine management system
Act 5.1 Assessment of hazards, impacts and vulnerability of endangered ecosystems
Act 5.2 Restoration actions supporting endangered species
Act 5.3 Integrated coastal/marine management systems

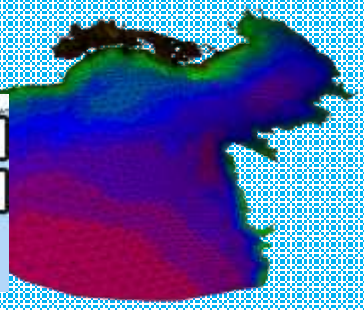
The modelling strategy adopted by PP4 – ARPA FVG

Spatial resolution

high

S.HY.F.E.M.

Shallow water Hydrodynamic Finite Element Model



High spatial **resolution** (from 4 km to 10 m)**. Gulf of Trieste** and Marano-Grado **lagoon.**

Past

Hindcast

Analysis

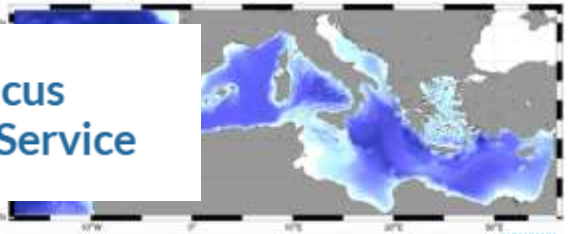
Now

Forecast

Future

Copernicus
Europe's eyes on Earth

Copernicus
Marine Service



Low spatial **resolution** (4 km × 4 km). **No data** near the **coast** and in the Marano-Grado **lagoon**

Low

Interreg
Italy - Croatia
CASCADE
European Regional Development Fund

EUROPEAN UNION

ARPA FVG
AGENZIA REGIONALE PER LA PROTEZIONE DELL'AMBIENTE DEL FRIULI VENEZIA GIULIA

CONTACT INFORMATION

Partner Name: **ENVIRONMENTAL PROTECTION AGENCY OF FRIULI VENEZIA GIULIA (ARPA FVG)**

Contact person: **Dario Giaiotti**

Via Cairoli, 14 I-33057 Palmanova (UD) - ITALY

Dario.giaiotti@arpa.fvg.it

http://www.arpa.fvg.it