



The Interreg Italy – Croatia CBC project ASTERIS - Adaptation to Saltwater intrusion in sea level Rise Scenarios has come to an end in June 2021.

ASTERIS has been designed to assess the impact of **seawater intrusion on coastal aquifers** under present-day conditions and future climate scenarios, with the aim to improve our understanding of the impact of climate change on natural and human-modified coastal ecosystems. Climate change is actually expected to have a profound impact on ecosystems, and the adoption of new paradigms and standards that consider **future scenarios in territorial management** represents a major challenge for society.

The project has been developed along the lines of an effective collaboration between all partners involved. Differences in the natural (geological) settings as well as territorial regulations over the two countries have stimulated a constructive confrontation among the partners towards obtaining common solutions to the problems afforded.

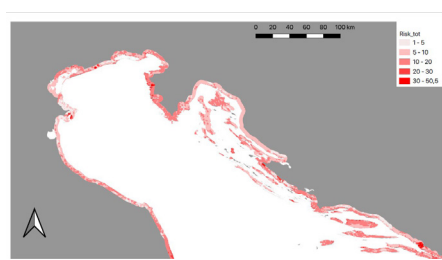
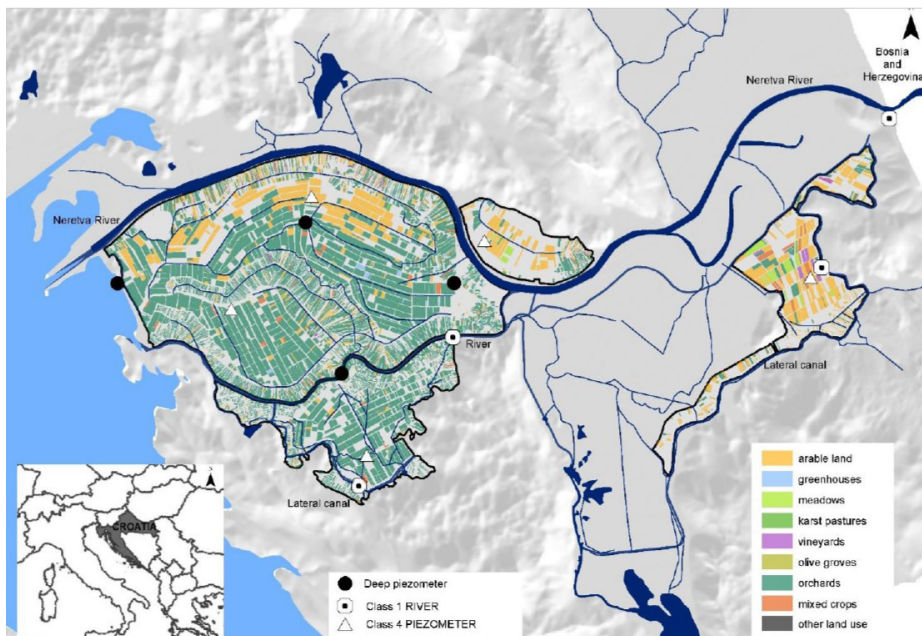
ASTERIS' approach has required an integration of data with con-

ceptual and numerical modelling to achieve a quantitative assessment of coastal aquifer vulnerability under future climate scenarios, which responds to the increasing demand for a thorough identification of adaptation and mitigation actions.

At a general level, the project has been developed in 3 distinct steps: first with a critical evaluation of the dynamics of the aquifers and the production of vulnerability maps (activities carried out under the work package 3 – **Modelling present and future salt ingression in Adriatic coasts**); then with the establishment of one monitoring system for salt ingression in groundwater and its experimentation in 3 different case studies between Italian and Croatian coasts (under the WP4 - **Identification of future hydrological cycle scenarios in the Adriatic**); and finally with the definition of solutions and guidelines for institutions and stakeholders (under the WP5: **Development of a model of the risk based on future scenarios**).

More specifically, the project partners managed to achieve two main outputs:

1 Monitoring system and integration with the modelling results: the monitoring system put in place has allowed improving the resolution and temporal extent of the available information on factors and mechanisms regulating coastal aquifer salinization over selected case studies. This result coupled with the obtained numerical simulation of climate-change related sea-level rise and hydrological regime at the regional scale has allowed to develop and validate an integrated vulnerability model that assesses the future risk for salinization depending on water utilization. Ultimately, these results provide a tool for adaptation and mitigation strategies by territorial agencies. The vulnerability model has been tested in 3 study areas: Fano and Ravenna coastal areas (Italy) and the Neretva Valley (Croatia).



2 Plans for adaptation measure at local level (n.3): Based on the above-mentioned findings, some adaptation plans have been developed in collaboration with the Municipalities of Fano, Ravenna and by Croatian Waters. Adaptation plans are based on planning documents for water management to design conceptual solutions and investment programmes on one hand, and best practices and guidelines on adaptation measures on the other one.

Looking at the future, the **network of operation** provides an opportunity for collaboration with international institutions that could potentially allow to extend the data-modelling integrated methodology adopted by ASTERIS to larger areas in the Mediterranean, under different

international cooperation programs. In this context high-resolution maps of risk to salt intrusion at the regional level will be made available to territorial agencies via institutional networks of national agencies involved that will be the owner of results and outputs holding the responsibility for the adoption of related adaptation measures.

All the deliverables can be retrieved and downloaded from the official project webpage: <https://www.italy-croatia.eu/web/asteris>

If you want to know more about the project or you are interested in following up the ASTERIS experience and capitalize its results, don't hesitate to get in contact with its partners.

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