

Expected Results

- ✓ Comprehensive Geographic Information System (GIS) for Ria Formosa regarding morphology and forcing conditions (waves, storms, sea levels)
- ✓ Maps and curves of barrier environments' evolution
- ✓ Modelling results for barrier island and lagoon system evolution under future scenarios
- ✓ Quantification of resilience of the Ria Formosa system and its subsystems (four study sites)

By enhancing the knowledge on coastal systems' resilience mechanisms and timescales, **EVREST** results are important both **scientifically** and **environmentally**, as they can be used to promote sustainable coastal management and to improve risk reduction measures and coastal interventions

Project Partners

- ✓ Centre for Marine and Environmental Research (CIMA), University of Algarve
- ✓ Faculdade de Ciências, University of Lisbon
- ✓ Centro Ciência Viva de Tavira



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Identify barrier resilience mechanisms, quantify timescales of environmental change and evaluate scenarios of barrier evolution in the Ria Formosa barrier island system

<http://evrest.cvtavira.pt/>

Project Objectives

- ✓ Identify natural mechanisms of barrier island resilience in oceanfront and backbarrier environments
- ✓ Quantify timescales and evolutionary rates of barrier and lagoon environmental recovery
- ✓ Evaluate scenarios of barrier island evolution on a multi-decadal scale based in modelling simulations

'Resilience' describes specific system attributes concerning: (i) the amount of disturbance a system can absorb and still remain within the same state and (ii) the degree to which the system is capable of self-organisation

Data and Tools

- ✓ Aerial photographs, orthophotographs and high-resolution, LIDAR-based, terrain models
- ✓ Wave recordings and hindcasting time-series
- ✓ Sea level time-series
- ✓ Numerical models for barrier island evolution

1 Dunes

The eastern sector of Baretta Island has a recent history of shoreline progradation due to the presence of Faro–Olhão Inlet jetties that interrupt longshore drift. It is an EVREST study site, as it presents a unique opportunity of studying beach ridge and foredune development, and dune vegetation evolution.



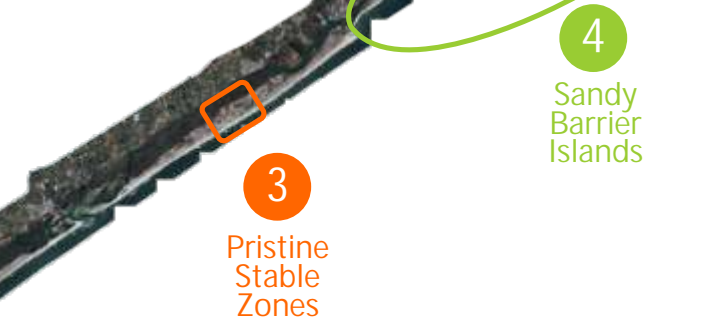
2 Salt marshes

Eastern Culatra is inlet-dominated, with development of curved sandy spits. The barrier embayments on the lagoon side of Culatra Island are an EVREST study site, since they present the recent environmental succession from sandy shore to saltmarsh.



3 Pristine Stable Zones

Praia do Barril in Tavira is an EVREST study site, as it represents the evolution of a barrier island unaffected directly by tidal inlets, with an almost continuous foredune backed by an extensive backbarrier.



4 Sandy barrier islands

Cabanas Island has been elongating towards the East since the 1960s due to the eastward migration and narrowing of the Lacém Inlet. The Cabanas Island and Cacela Peninsula subsystem is studied in EVREST because it allows the study of barrier development, from intertidal features to vegetated dunes.

