DITTY Project

Development of an Information Technology Tool for the Management of Southern European Lagoons under the influence of river-basin runoff

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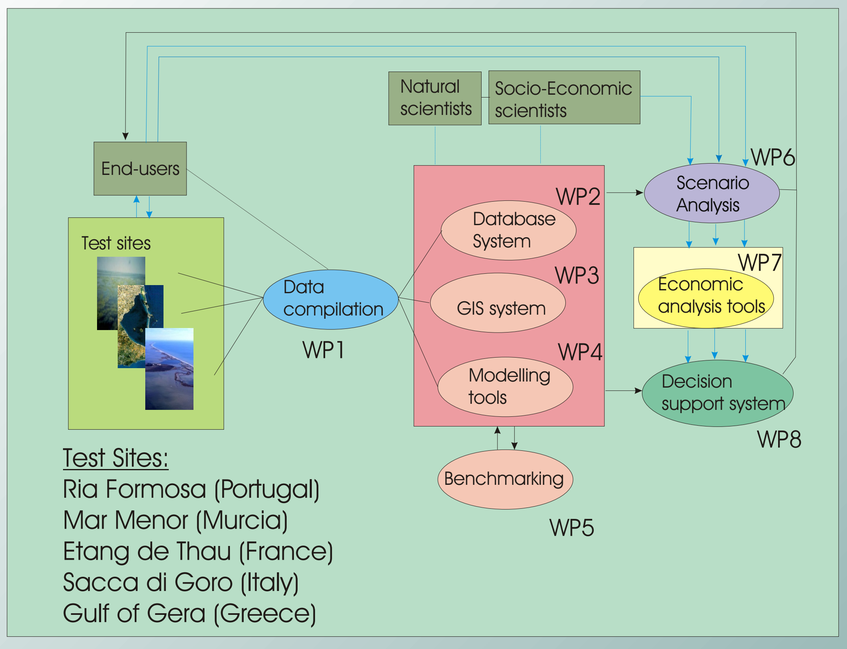
- EU coastal lagoons suffer from strong anthropogenic pressures: freshwater inputs rich in pollutants, land use changes, shellfish farming, tourism, etc.
- Ecosystem functioning disruptions: Anoxic crises, algal blooms, shellfish mortalities, etc.
- Solution: Integrated Management approach (data+bio-economic models+DSS)

Sacca di Goro (I) *Ulva* proliferation

Etang de Thau (F) anoxic crises

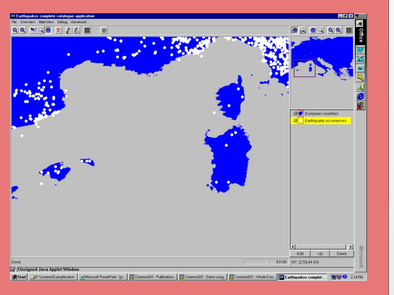


- WP1: Data compilation and analysis

a/ Spatio-temporal series :

- General(land use, soils, topography,bathymetry, etc.)
- Nutrients (watershed water column, sediments)
- Biota
- Oceanographic
- Meteorology

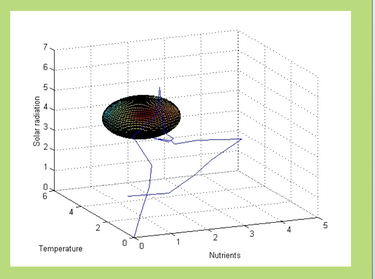
b/ Approaches, projects, studies



- WP2: Database development
  - Methodology to adopt concerning DB
  - Analysis and implementation of DB
- WP3: GIS development
  - Methodology to adopt concerning GIS
  - Analysis and implementation of GIS

- WP5: Comparative analysis
  - Similarities/differences between test sites
  - Validity of models and tools developed
  - Benchmark activities
  - User Guide
  - Application of ecosystem indicators
- WP6: Scenario analysis on selected case studies

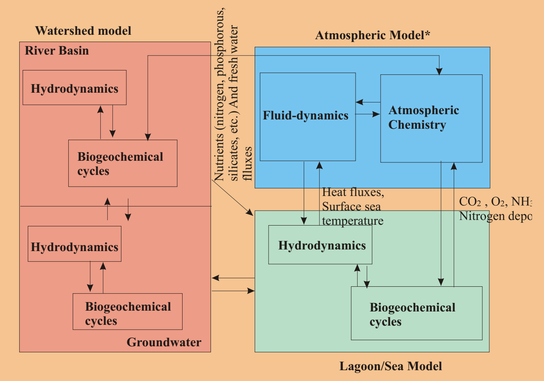
a/ Effects of nutrients loads
b/ Effects of bacteria of sanitary concern
c/ Early warning detection system for anoxic crises
d/ Effects of climate variability
e/ Changes in resource exploitation

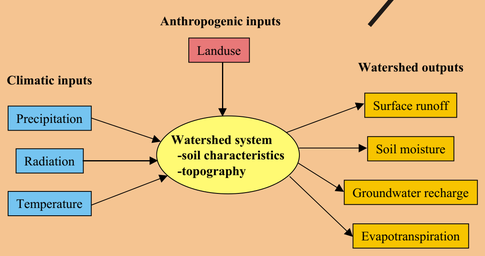


- WP4: Integrated model development and validation
- Methodology to adopt concerning modelling

a/ Watershed modelling
b/ Coastal lagoon modelling
- Ecological modelling
- 1D-3D coupled models (COHERENS)
c/ Coupling watershed+lagoon
d/Sensitivity Analysis
e/Coupling with socio-economic data

Coupling models





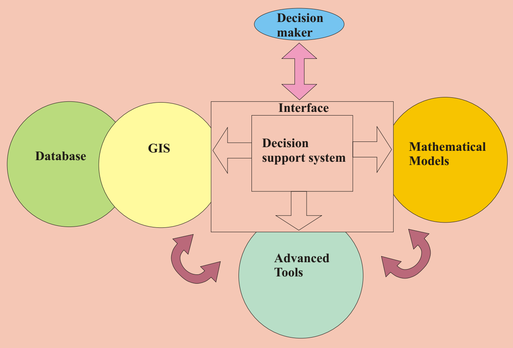
Representation of the hydrological model

- WP7: Socio-economic analysis of management options

- Economic analysis of test sites
- Cost Benefit analysis (CBA)
- Modelling options
- Cost-effectiveness analysis (CEA)

- WP8: Decision Support System for coastal lagoons management

How to extract information from all the tools developed to solve specific end -user problems, for example: prediction of Ulva blooms, shellfish bacterial contamination, etc.



Expected deliverables

- Common DB, GIS and modelling tools architectures
- Intercomparative and scenario analysis (bioeconomics)
- DSS prototype tailored for each test site
- Management alternatives to improve the ecosystem health of coastal lagoons