



SPICOSA

<http://www.spicosa.org>

Venice Lagoon an Ecological, Social and Economic integrated model

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Consortium for Coordination of Research Activities Concerning the Venice Lagoon System

SPICOSA is an EU Integrated Project in the framework of the VI FP that will strengthen research throughout the European Region and produce products useful to society. The **project's goal** is to create a self-evolving, operational framework for delivering prognostic assessments of policy options for the sustainable management of coastal zones.

Achieving this objective will require a restructuring of the science and methodology needed to understand and quantify the response of coastal zones to changing environmental and anthropogenic conditions and the resulting impacts on ecosystem services.



The project will test and improve the SAF in eighteen **Study Site Applications (SSAs)** all over Europe. In order that the SAF become an operable tool for both Science and Policy, we are demonstrating its applicability to Integrated Coastal Zone Management (ICZM) over a wide variety of coasts that differ in geomorphology, environmental conditions, culture and human activities.

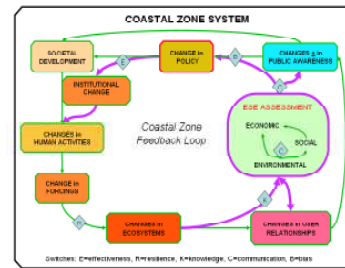
The methodological product is called **Systems Approach Framework (SAF)**, that will develop a balance among **Ecological, Social and Economic (ESE)** sectors of Coastal System, expanding the conventional application of the System Approach to the larger CZ System. By employing the integrated ESE Assessment box, SPICOSA will increase the potential for quick evaluation of policy changes.



<http://ec.europa.eu/sustainable>



<http://cordis.europa.eu/fp6/dc>



Coastal Zone System Information Feedback Loops (CZFL). Default loop in green; SPICOSA loop in purple



Venice Lagoon

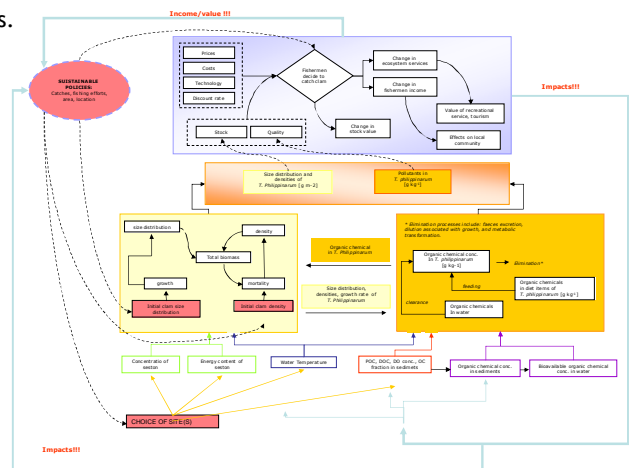
Venice Lagoon has a surface area of about 550 km². It is not only the largest lagoon, but has the widest tidal range of the Mediterranean Sea. Three inlets, Lido, Malamocco, and Chioggia, connect it to the Northern Adriatic Sea.

SPICOSA methodology is applied on the policy issue **“methods of managing *Tapes philippinarum* fishing”**. The total amount of *T. philippinarum* production in this area is about 22000 ton per year, accounting for 60% of national production. Its actual sustainability is uncertain: over-fishing, ‘fishing down the food-web’, sediment resuspension, damage to benthos and habitat destruction are recurrent problems. Adverse effects associated with shellfish farming activities may concern, environmental hazards, such as organic enrichment of the sediment around shellfish farms, reduction in food supplies for other filter feeding organisms, habitat disturbance and degradation. The economic and social aspect of the topic are aimed to guaranteeing a sustainable economic growth of local community, preserving clam from over exploitation and ensuring high food safety standards to consumers. SPICOSA methodology applied to the policy issue chosen will settle on scenarios on how to allocate clam fishing areas, how to manage them, how to control or how to discourage illegal clam fishing, especially in polluted or prohibited areas.

Tapes philippinarum



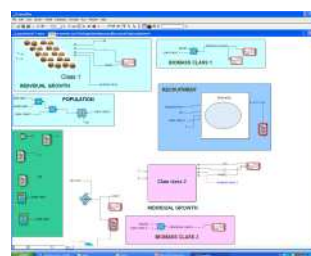
Clam fishing techniques: mechanical harvesting consequent sediment resuspension



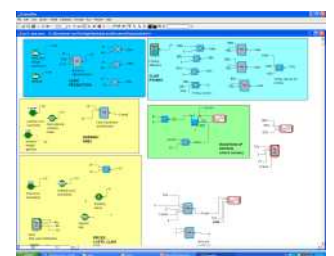
Venice Lagoon Virtual System conceptual model

In this CZ application, the system approach requires a system's model that follows the pathways of mass, energy, money, employment and other information through the large feedback loop. Initially, one of the main problem in the Venice Lagoon system has been selected and then, works backward in order to gather and link together all the information needed to constitute the cause-effect chain.

A Conceptual Model which includes ecological and economic state variables, forcings, boundaries and constrains has been developed. Using this model we aim to produce different simulations in order to perform a scenario analysis by varying external economic and ecologic conditions.



Growth and population model



Bio-economic model