



RTD Synopsis: TA 8 - Socio-economics & Management

To date, relatively little research on Socio-economics has been undertaken in the various Framework Programmes for research. The EU Commission received to recommendations to redress this imbalance and will increase efforts to fund more research in this field.

The positive effects of extensive and semi-intensive aquaculture in coastal areas have been clearly recognised within EU policy. In its “Strategy on the Sustainable Development of European Aquaculture” (COM(2002) 511), the Commission stressed the beneficial impact of extensive systems as regards the protection and restoration of the environment in areas of particular ecological interest, as well as the development of employment opportunities in rural and coastal areas. Moreover, the Strategy underlines their potential for ecotourism and education.

Increasing aquaculture production with Environmental sustainability:

Two projects, SEACASE and SPEAR, addressed the issue of aquaculture production with environmental sustainability and form the basis of this RTD synopsis on Socio-economics.

- **SEACASE (FP6)** - Promoting extensive and semi-intensive aquaculture in southern Europe - aimed to develop effective tools for the maintenance of competitiveness, productivity and profitability of extensive and semi-intensive aquaculture production in southern Europe, while reducing the environmental impacts and improving the quality and public image of its products. The main outputs of the project included:
 - Proposed Codes of Good Practice for extensive and semi-intensive aquaculture in coastal areas, including product safety, animal welfare and environmental issues.
 - Investigation of Quality markers which distinguish aquaculture products from extensive and semi-intensive systems from those produced under intensive systems. Some of these markers may potentially facilitate product traceability.
 - A joint European certification process was evaluated as a desirable step to increase market demand of high quality aquaculture products, while improving consumer perception.
- **SPEAR (FP6)** - Sustainable options for people, catchment and aquatic resources - investigated the limiting factors which prevent the aquaculture sector from expanding. The two main limiting factors are space and the carrying capacity of a particular site. SPEAR developed models to determine the optimum positioning of aquaculture operations to ensure sustainability. Where space is available, the environment cannot always cope with such an



expansion. The carrying capacity of production areas needs to be quantified to allow for the responsible management of shellfish aquaculture expansion. SPEAR developed three models

- FARM model - simulates processes at the fish farm-scale, by integrating a combination of physical and biogeochemical models, shellfish and finfish growth models and screening models for determining optimal production, income and expenditure.
- MARKET model- allows for an integrated dynamic analysis of (i) the demand for mariculture products, (ii) economic production and cost limiting factors, (iii) the biological growth of aquatic resources, (iv) interactions with the environmental conditions and (iv) the spatial limitations of culture in coastal ecosystems.
- MOM model – modelling ongrowing fish farms monitoring can be used to regulate the environmental impact of fish farming. This model estimates the holding capacity of fish farming sites and is expressed in terms of maximum fish production per month.

Through promotion of extensive and semi-intensive aquaculture in coastal areas, the SEACASE project aimed to contribute to the better management of coastal areas of particular ecological interest, support sustainable production, employment and, in the longer term the development of ecotourism and environmental education.

When the three models developed by the SPEAR project are used in combination they provide an effective tool which allows for the sustainable management of fish farms. The models assess ecological and economic interactions and can be used to develop integrated catchment management plans.

Sustainable integration of aquaculture in the European coastal zone

- **COEXIST (FP7)** - Interaction in European coastal waters: A roadmap to sustainable integration of aquaculture and fisheries - aims to provide a roadmap to better integration, sustainability and synergies across the diverse activities taking place in the European coastal zone. Project outcomes will support decision makers to better manage their coastal areas. It will provide spatial management and scenario-based models to evaluate the current interactions existing between aquaculture and fisheries in the coastal zones and between this two and the other activities carried out in these areas. The models will also be used to predict how different activities will interact in the same area (evaluation of possible synergies and conflicts).



Ethical Aquaculture Trade

- **SEAT (FP7)**- Sustaining Ethical Aquaculture Trade - aims to develop improved and transparent measures of sustainability for certain aquatic food systems through creation of an Ethical Aquaculture Food Index (EAFI) and will include examination of environmental services, economic efficiency, social justice, food quality and safety and animal welfare.
- **PEGASUS (FP7)**-Public Perception of Genetically Modified Animals - Science Utility and Society - aims to provide policy support regarding the development and commercialisation of genetically modified animals and also foods and pharmaceutical products derived from them.

Future needs:

Socio-economics recognises that the term consumer not only applies to the person eating the seafood product but those who also use the same aquatic resources as the producer and expect a level of confidence in its quality. A holistic approach to the users of aquatic environments must be considered in any future research into socio-economics.

It is recommended that future MARKET model developments include: (i) an improvement of the decision model, in particular for decisions by farmers about changes of production level, (ii) explicit dynamic coupling with an ecosystem model, and (iii) implementation for other aquaculture species and culture practices, especially those that normally raise more concerns related with environmental management, such as finfish monoculture.

SEACASE developed environmentally sustainable farming protocols and certification possibilities were assessed and proposed. However, at present the adoption of these protocols are on a voluntary basis by the industry and as such are not required by current legislation.

A full list of the projects undertaken in Thematic Area 8 - Socio-economics can be found in the Annex. More detailed information is provided in the Technical Leaflet (TL) describing the main outputs and deliverables of each project.



Thematic Area 8: Socio-Economics

F.P.	Acronym	Project Title
7	PEGASUS	Public Perception of Genetically Modified Animals - Science Utility and Society
7	COEXIST	Interaction in European coastal waters: A roadmap to sustainable integration of aquaculture and fisheries
6	SEACASE	Sustainable extensive and semi-intensive coastal aquaculture in southern Europe
7	SEAT	Sustaining Ethical Aquaculture Trade
6	SPEAR	Sustainable options for People, Catchment and Aquatic Resources