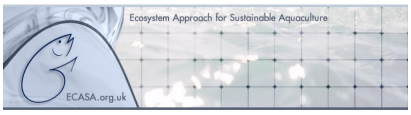

Aquainnova

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ECASA

Ecosystem approach to sustainable aquaculture

The Challenge

In 2002 the European Commission published a strategy for the sustainable development of European aquaculture. One of the main objectives of this was to ensure an environmentally sound industry and develop specific criteria and guidelines for Environmental Impact Assessments of aquaculture developments. The Common Fisheries Policy, which covers European aquaculture development, recognises that the way forward to a sustainable industry is through an ecosystem based approach, "where the integrated management of land, water and living resources must promote the conservation and sustainable use of marine resources in an equitable way". An ecosystem approach to aquaculture management is concerned with ensuring aquaculture management decisions do not adversely affect ecosystem function and productivity and so marine resource use is sustainable in the long term.

Marine aquaculture has been expanding rapidly in the last decade and the current value of annual aquaculture production is €2,500 million, consisting of 17% of the volume and 27% of the value of the total fishery production of the union. Usually based in rural coastal areas where traditional employment is in decline, aquaculture developments have helped stabilise rural populations by providing year round employment.

To maintain current production levels and enable further development of the industry, a holistic ecosystem based approach to the application of farming technologies and governance, the consideration of socio-economics and natural resource use, should be adopted so that all these factors can be integrated and sustainability may be achieved.

Project Objective

ECASA aimed to support the aquaculture industry by providing guidance and tested tools to minimise environmental impacts whilst maximising sustainable productivity. The focus of the project was to provide industry and regulators with tested tools and methods for assessing assimilative capacity and for predicting ecosystem effects in an environment forced by economic and climatic variability.

Key Points

- Identify quantitative and qualitative indicators of the effects of aquaculture on the environment and vice-versa, and to assess their applicability.
- Assess and develop operational tools, including models, to establish and describe the relationship between environmental conditions and aquaculture activities over a range of ecosystems and

EATiP *Thematic Area of Relevance*

TA1: Product Quality, Consumer Safety and Health
TA2: Technology and Systems
TA3: Managing the Biological Lifecycle
TA4: Sustainable Feed Production
TA5: Integration with the Environment
TA6: Knowledge Management
TA7: Aquatic Animal Health and Welfare
TA8: Socio-Economics and Management

Key Words

Aquaculture, environment, models, indicators, site-selection, regulation, capacity

Project Information

Contract number:
501984
Contract type:
Specific Targeted Research Project
Action line:
POLICIES-1.3 The modernisation and sustainability of fisheries policies
Duration:
36 months (01/12/2004 – 30/11/2007)
Coordinator:
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aquaculture production systems.

- Develop effective environmental impact assessment and site selection methods for coastal area management.

Output Highlights

Environmental Indicators
Fifty three indicators were proposed for testing which were considered to best measure the range of conditions and practices found within European aquaculture. Indicators were decided based on their ability to measure various environmental impacts – which can occur for example in sediments under the farms, in the benthic fauna, in water quality – as well as the socio-economic aspects of aquaculture. The main criteria for these indicators were that they should be scientifically robust, easy to measure and interpret and be cost efficient. Their applicability was tested throughout Europe at 14 different study sites and included both finfish and shellfish production systems.

Environmental models
ECASA developed a selection of environmental models which were capable of examining the relationship between the environment and aquaculture activities. These models were tested for their practical utility ("are they easy to set up, run and interpret?"), and their scientific robustness.

Industry Handbook/Tool Box
This suite of indicators and predictive environmental models were incorporated in an ECASA "Tool-Box", which also included a manual that presented the knowledge gained in the project, and will guide industry and regulators to the most useful tools appropriate for evaluating site suitability across varying environmental conditions. The project provided a consistent framework for the application of Environmental Impact Assessments, resulting in coherent and relevant Environmental Statements.

The Full Report:
For a description of the research project, visit http://www.ecasa.org.uk/ with the main project outputs available at http://www.ecasatoolbox.org.uk/

Next Steps – Suggested Actions/Follow On

Policy

- The development of a Tool Box which interprets the environmental indicators and the models to assist in determining the most suitable site for an aquaculture venture will allow for a coherent approach to developing environmental impact assessment and environmental standards. Interaction with industry and regulators throughout the project ensured the practical relevance of the work and that the user community achieved ownership of the project's outputs.
- The most obvious and important follow-on action is that the toolbox should be maintained and expanded in response to new developments in both aquaculture practice and new scientific progress. The coordinator has plans for such a follow-on, which would be quite modest in required funding.

Related Publications/Projects

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