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# ECASA

## An Ecosystem Approach for Sustainable Aquaculture

Project Coordinators: Dr Kenny Black and Ms Averil Wilson, SAMS.

Website: [http:// www.ecasa.org.uk](http://www.ecasa.org.uk)

### Introduction

ECASA is a Framework 6 RTD project with 16 research partners from 13 member states. It is the successor to several 4th and 5th Framework Programme projects which have helped to push forward our understanding of the effects of aquaculture on the environment, especially in the Mediterranean.

Within Europe marine aquaculture brings societal benefits to coastal communities where traditional employment opportunities are declining. This expanding industry can cause changes in the marine ecosystem and these interactions can be minimised by effective site selection and matching the scale of aquaculture to the assimilative capacity of the ecosystem.

Regulators and industry stakeholders are aiming towards sustainable development, requiring tested tools and methods for predicting ecosystem effects in an environment forced by economic and climatic variability.

To facilitate this process ECASA Partners will carry out an extensive field campaign throughout the summer of 2006. Seventeen field sites have been proposed, covering a range of conditions and cultivated species.

### Project Objectives

To identify quantitative and qualitative indicators of the effects of aquaculture on the environment and vice-versa, and to assess their applicability.

To develop operational tools, including models, to establish and describe the relationship between environmental conditions and aquaculture activities over a range of ecosystems and aquaculture production systems.

To develop effective environmental impact assessment and site selection methods for coastal area management.

### ECASA Field Campaign 2006

#### Proposed Study sites



Study sites, in ten European countries, have been proposed for the ECASA field campaign representing an array of environmental conditions and cultivated species: from the Norwegian site north of the Arctic Circle, ranging south to the Greek site located on the Isle of Crete. Both fin-fish and shellfish production systems are included in the study. The field campaign will run from March to September 2006. Table 1 below lists the locations, species and cultivation process at the study sites.

Table 1: Showing the sites locations, species cultivated and cultivation process.

Site Location	Species Cultivated	Cultivation Type
Norway	Salmon	Net pen
UK - Scotland	Salmon	Net pen
UK - Shetland	Cod	Net pen
France - Brittany	Oysters	Trestle and pole
France - Normandy	Clams, Oysters	Intertidal culture: bottom and trestles
France - South coast	Oysters, Mussels	Suspended culture on tables
Spain	Sea Bass, Sea Bream, Tuna	Net pens
Portugal	Clams, Oysters	Intertidal culture: bottom and trestles
Italy - Gulf of Venice	Mussels	Long line
Italy - Bisceglie	Sea Bass, Sea Bream, Pandora	Net pens
Italy - Porto Ercole	Sea Bass, Sea Bream, Shi Drum	Net pens
Croatia	Sea Bass, Sea Bream	Net pens
	Oysters, Mussels	Long lines
Slovenia	Sea Bass, Sea bream	Net pens
	Mussels	Long line
Greece	Sea Bass, Sea Bream	Net pens

### Aiding effective site selection and environmental impact assessment

The main impacts on the environment from aquaculture practices derive from the discharge of waste nutrients (from excess feed and faecal matter), chemicals (anti-foulants) and medicines (sea lice medicines, antimicrobial compounds). These discharged compounds can disperse through the water column or sink to the seabed and become incorporated within the sediment underlying the farm.



Identifying reliable, affordable and replicable biological indicators for the environmental impacts of aquaculture is the first fundamental step in ensuring effective environmental management practices for the aquaculture industry. This was the first objective of the ECASA project.

Fifteen indicators have been put forward for field testing, and they will be assessed during the 2006 ECASA field campaign.

The next step is to develop predictive tools (models) which, when fed the data from the field studies, can forecast the future impacts, their extent, reversibility and cumulative effects. Fifteen models are being scrutinised for their robustness, practical utility and predictive power in regard to the marine aquaculture environment. It also goes without saying that these tools should also be easy to use and comprehensible!

These tried and tested indicators and models, shall be incorporated into the ECASA 'Tool-Box'. This 'Tool-Box' shall be a vital aid to aquaculturalists, industry regulators and environmental managers in providing a consistent approach to environmental impact assessment, predict the ability of current sites to continue in production, and their assimilative capacity regarding increased production and identifying suitable sites for new aquaculture developments.



### Introducing the ECASA 'Tool-Box'



The ECASA 'Tool-Box' will hold a suite of indicators and models, suitable for applying to marine aquaculture, and a series of procedures advising on suitable combinations of these components and their particular applicability in the marine environment. The 'Tool-Box' will also include a manual that will present the knowledge gained in the project, and act as a guide for industry and regulators to aid selection of the most useful indicators and tools for determining site suitability for aquaculture activities across varying environmental types. Details of all the indicators, models and procedures screened and analysed by the ECASA project can be found at the project website - <http://www.ecasa.org.uk>.

### ECASA Partners

Scottish Association for Marine Science, UK  
University of Portsmouth, UK  
Napier University, UK  
National Institute of Biology, Slovenia  
Leibniz-Institute of Marine Science, Kiel University, Germany  
Akvaplan Niva, Norway  
University of Haifa, Israel  
University of Crete, Greece  
Plymouth Marine Laboratory, UK  
Institute of Marine Research, Portugal  
Central Institute for Marine Research, Italy  
Institut Francès de Recherche pour l'Exploitation de la Mer  
Instituto Tecnológico Pesquero y Alimentario, Spain  
University of Venice, Italy  
Rudjer Boskovic Institute, Croatia  
University of Göteborg, Sweden

Dr Kenny Black [kenny.black@sams.ac.uk](mailto:kenny.black@sams.ac.uk)  
Dr David Whitmarsh [david.whitmarsh@port.ac.uk](mailto:david.whitmarsh@port.ac.uk)  
Prof Paul Tett [p.tett@napier.ac.uk](mailto:p.tett@napier.ac.uk)  
Dr Aleka Malej [malej@mbos.org](mailto:malej@mbos.org)  
Dr Helmut Thielmeyer [hthielmeyer@fm-geomar.de](mailto:hthielmeyer@fm-geomar.de)  
Dr Reinhold Fießer [r.fießer@akvaplan.niva.no](mailto:r.fießer@akvaplan.niva.no)  
Dr Dror Angel [dror@mit.edu](mailto:dror@mit.edu)  
Dr Yannis Karakassis [karakassis@biology.uoi.gr](mailto:karakassis@biology.uoi.gr)  
Dr Tony Ferreira [tjferreira@pml.ac.uk](mailto:tjferreira@pml.ac.uk)  
Dr Joao Ferreira [jfoa@hoomi.com](mailto:jfoa@hoomi.com)  
Dr Salvatore Porello [s.porello@icram.org](mailto:s.porello@icram.org)  
Dr Alain Bodoy [Alain.Bodoy@ifremer.fr](mailto:Alain.Bodoy@ifremer.fr)  
Dr Angel Borja [aborja@pas.azti.es](mailto:aborja@pas.azti.es)  
Dr Roberto Pastres [rpastres@univie.it](mailto:rpastres@univie.it)  
Prof Tarzan Legovic [legovic@rib.hr](mailto:legovic@rib.hr)  
Dr Anders Stigebrandt [anstige@oce.gu.se](mailto:anstige@oce.gu.se)



[www.ecasa.org.uk](http://www.ecasa.org.uk)

Contact Details:

Coordination Team

[Kenny.Black@sams.ac.uk](mailto:Kenny.Black@sams.ac.uk)

[Averil.Wilson@sams.ac.uk](mailto:Averil.Wilson@sams.ac.uk)

[ECASA@sams.ac.uk](mailto:ECASA@sams.ac.uk)



DUNSTAFFNAGE MARINE  
LABORATORY OBAN  
ARGYLL  
PA37 1QA SCOTLAND  
T: (+44) (0)1631 559000  
F: (+44) (0)1631 559001  
E: [info@sams.ac.uk](mailto:info@sams.ac.uk)  
W: <http://www.sams.ac.uk>