



# ECASA - Ecosystem Approach for Sustainable Aquaculture

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Introduction to ECASA

Partners

Objectives

Workpackages

Timeline

Contact details



Salmon Farm. Loch Creran, March 2003.



# ECASA - Ecosystem Approach for Sustainable Aquaculture

## Partners

Sixteen partners across Europe

Project Co-ordinator-SAMS



	Partner		Country
1	Scottish Association for Marine Science	SAMS	UK
2	Centre for the Economics and Management of Aquatic Resources	UOP	UK
3	Napier University	NNUE	UK
4	National Institute of Biology	NIB	Slovenia
5	Leibniz-Institute of Marine Science	IFM-GEOMAR	Germany
6	Akvaplan Niva	Akvaplan	Norway
7	University of Haifa	HAIFA	Israel
8	University of Crete	UOC	Greece
9	Plymouth Marine Laboratory	PML	UK
10	Institute of Marine Research	IMAR	Portugal
11	Central Institute for Marine Research	ICRAM	Italy
12	Institut Français de Recherche pour l'Exploitation de la Mer	IFREMER	France
13	Instituto Tecnológico Pesquero y Alimentario	AZTI	Spain
14	University of Venice	DCF_UNIVE	Italy
15	Rudjer Boskovic Institute	RBI	Croatia
16	University of Göteborg	UGOT	Sweden



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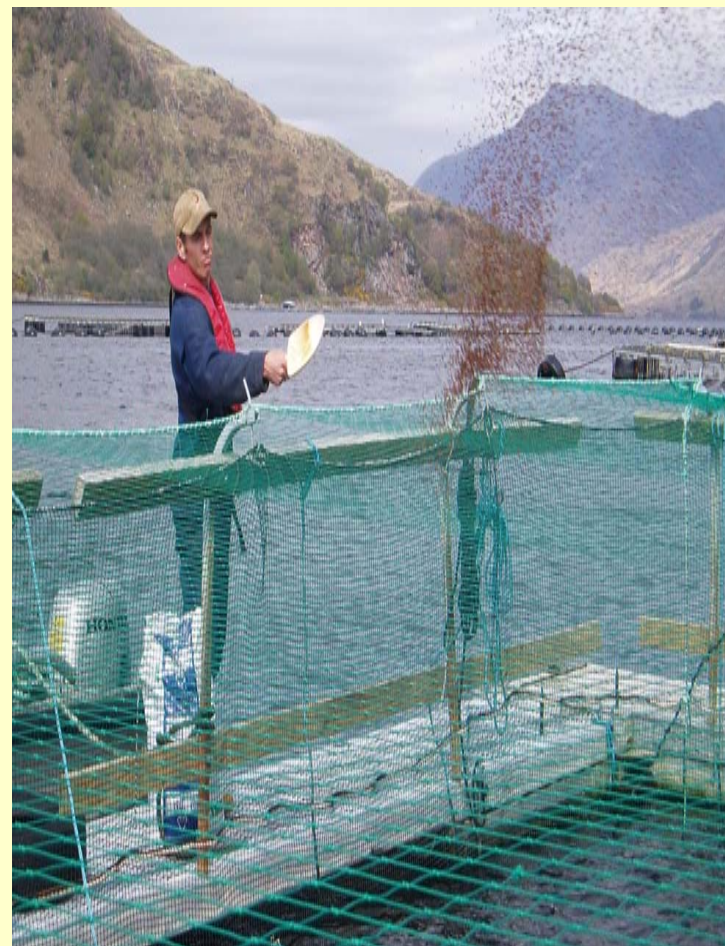
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## Objectives

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.





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## Approach

Identifying and quantifying the most relevant indicators of the interactions (positive and negative) of aquaculture on ecosystem considering physical, chemical and biological factors, and including socio-economy (such as local fisheries) and secondary impacts;

Identifying and quantifying the main driving forces of ecosystem changes influencing the aquaculture sector and to develop the appropriate environmental indicators;

Assessing the applicability of such indicators (efficiency, cost effectiveness, robustness, practicality, feasibility, accuracy, precision, etc) and developing operational tools, e.g. models establishing the functional relationship between environment and aquaculture activities;

Testing and validating these tools in order to include them in a methodology for Environment Impact Assessment (EIA) and effective site selection.





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## WORKPACKAGES

Workpackage 1. Co-ordination

Workpackage 2. Identifying and quantifying the most relevant indicators of the interactions of aquaculture on ecosystems

Workpackage 3. Identifying and quantifying the main driving forces of ecosystem changes influencing the aquaculture sector and developing the appropriate environmental indicators

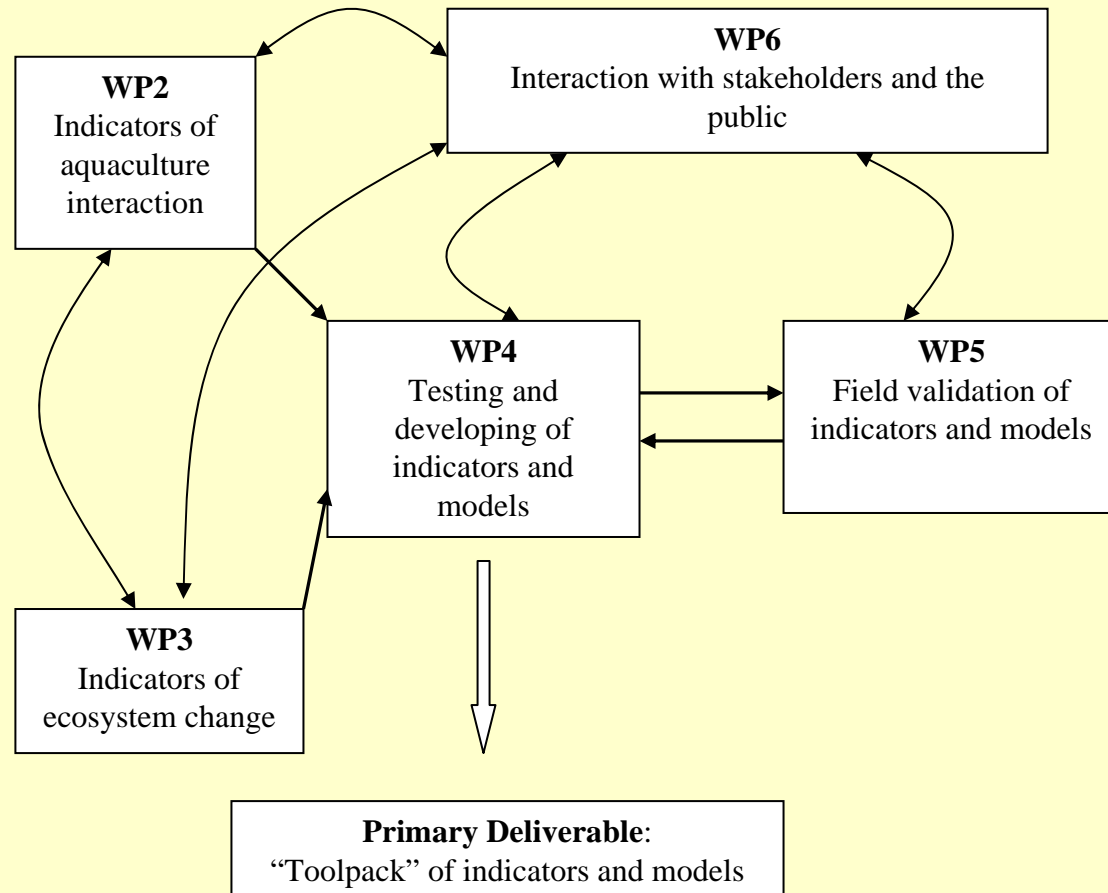
Workpackage 4. Assessing the applicability (efficiency, cost effectiveness, robustness, practicality, feasibility, accuracy, precision, etc) of selected indicators and developing operational tools, e.g. models, establishing the functional relationship between environment and aquaculture activities.

Workpackage 5. Testing and validating these tools in order to include them in a methodology for Environment Impact Assessment (EIA) and effective site selection.

Workpackage 6. Dissemination



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Graphical presentation of the components showing their interdependencies (straight lines) and information flow (additional curved lines)

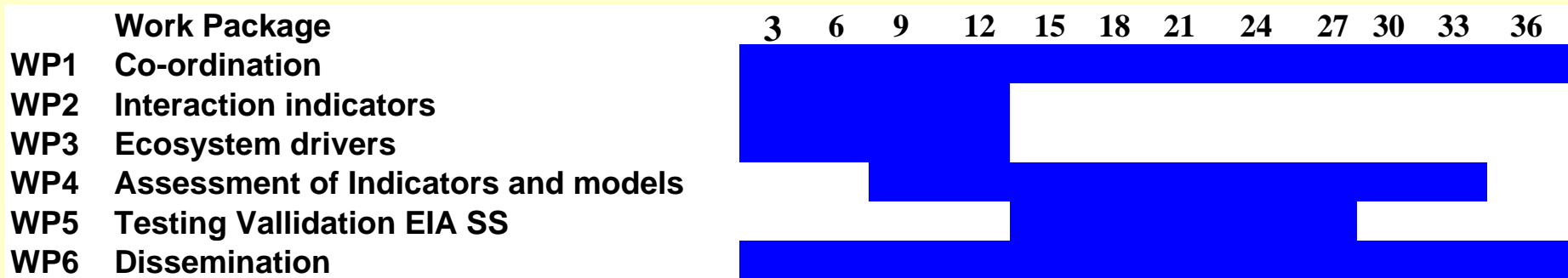


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## Timeline

Project started December 2004 - 36 months





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## WP2 Identifying and quantifying the most relevant indicators of the interactions of aquaculture on ecosystems

### Objectives

- To retain a workable definition of indicators, to be used in this study.
- To identify the most relevant indicators of the impacts of aquaculture on ecosystems, including on other activities (fisheries grounds, sea-ranching) and interactions relating to issues of relevance to the Birds and Habitat Directives.
- To identify indicators of socio-economics impact of aquaculture on coastal areas.
- To classify the different indicators of positive or negative impact of aquaculture on ecosystems, with regards to the different types of aquaculture, their location and their environment.
- To assess the interactions between aquaculture and other major uses of the coastal zone (fisheries, tourism & recreation, shipping etc)



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WP3 Identifying and quantifying the main driving forces of ecosystem changes influencing the aquaculture sector and developing the appropriate environmental indicators

## Objectives

- To identify and quantitatively assess the role and the relative importance of the different forcing factors: (aquaculture, fisheries, pollution, eutrophication, habitat destruction etc.) and environmental variations affecting the water quality in aquaculture zones and the major ecosystem services provided
- To suggest the best methods for obtaining reference levels and associated indicators useful to monitor the impact of anthropogenic factors on aquaculture
- To assess indicators of the interactions between aquaculture and other major uses of the coastal zone (fisheries, tourism & recreation, shipping etc)
- To identify potential ways for measuring the additional cost caused by external environmental change.
- To identify indicators of incompatibilities between uses and/or minimal distances required to avoid conflicts over environmental issues



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WP4 Assessing the applicability (efficiency, cost effectiveness, robustness, practicality, feasibility, accuracy, precision, etc) of selected indicators and developing operational tools, e.g. models, establishing the functional relationship between environment and aquaculture activities.

### Objectives

To assess the efficiency, cost effectiveness, robustness, reliability, practicality, feasibility, accuracy, and precision of aquaculture-environment interaction indicators identified in WP2 and WP3.

To develop operational tools, especially models, which capture the functional relationship between environment and aquacultural activities, and which embody the chosen indicators. The chosen model set will include stand-alone tools currently fit for purpose, developments of existing models to increase applicability and robustness and hybridisations of existing models to enhance predictive power.



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WP5 Testing and validating these tools in order to include them in a methodology for Environment Impact Assessment (EIA) and effective site selection.

## Objectives

To establish robust site selection criteria to maximise the utility of the work package.

To select suitable study sites for testing of the tools and indicators that are chosen in WP4

To carry out a series of field sampling campaigns (~10) that will generate a database of information that will enable evaluation of the tools and indicators by means of appropriate predictive models.



Marine fin fish farm, Crete



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## WP6 Dissemination

### Objectives

- To ensure effective dissemination of the project through producing effective public and private web-interfaces.
- To ensure co-ordination of national meetings between stakeholders and participants and the 2 way flow of information.
- To organise a final international meeting of the project between participants and stakeholders including organisations from outside the partner's countries and appropriate international bodies.
- To co-ordinate the production of effective dissemination materials including newsletters



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## The ECASA 'Tool-pack'



The data produced during ECASA will test and select the final 'tool-pack' of models and indicators, including decision support tools to guide users to effective implementation



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## Contact Details

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