

### “AQCESS”

## Are aquaculture and coastal fishing sustainable?

*There are many reports, particularly in newspapers and on the television, that portray a lurid picture of fish farming, which is said to be poisoning the planet, wreaking untold damage to marine life and the coastal environment. On the other hand, industry evangelists trumpet its benefits in terms of jobs and the economy.*

*These conflicting views, even when they are exaggerated, demand a response on the sustainability of aquaculture in terms of its environmental effects, the employment provided by aquaculture and its socio-economic impact.*

In its search to find answers on the sustainability of aquaculture, the **AQCESS** project asked three key questions about fish farming, fishing and local communities:

- How does **employment** in rural communities change with the arrival of aquaculture?
- What are the predictions for **socio-economic, environmental and social** sustainability resulting from the interactions between aquaculture and fisheries?
- Which recommendations can be made for **coastal resource management** in areas where aquaculture and fisheries coexist?

Ten case studies were selected to answer these questions – two per partner country –, which all had very different environments, ranging from Scottish Sea lochs to Greek coastal waters, Irish bays, Finnish islands and a Portuguese coastal lagoon. With respect to **environmental regulations and policy** a great diversity was noted between countries.

However, the project consortium was able to make the following general recommendations:

- a good **water quality management and monitoring** system should be implemented;
- **integrated management** of fish farming areas is required in order to solve the problem of **competition for space** with other sectors (e.g. tourism);
- the **prevention principle** should be applied with respect to **escapes** of farmed animals.

Existing data on fishing fleets, fishing effort and landings on the one hand and aquaculture production on the other hand were compared to see if there was any historical evidence of **interactions between aquaculture and fisheries** from a **biological** point of view. In addition, new data were collected, which focused on the effects of fish farming on sea bed animals, fish communities, fish population parameters, fish diet and fish behaviour.

The main aim of this study was to determine to what extent fish farming affects biodiversity and the marine resources, therefore influencing catches and landings in local inshore fisheries. The analysis revealed considerable

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differences between sites, which were linked to the already existing nutrient level in the water bodies under study. In **Scotland** and **Portugal** there was **no impact of fish farming** at the large scale level, consistent with the relatively low proportion of nutrients arising from aquaculture, whereas in **Greece** – where the waters are nutrient poor – the higher nutrient levels in the **presence of fish farms** attracted wild fish to the sites, which resulted in **higher local landings of bigger fish**. From the sites studied in the Atlantic, no evidence was found that aquaculture is not ecologically sustainable.

A major component of the AQCESS project was the **socio-economic analysis** of the people working in fish farms, fisheries and other local employment sectors, and of industry stakeholders. A review of existing data relating to the professional and social structure in the study areas helped to build a comprehensive picture of the current legislation governing fish farms and of significant changes in fishing fleets and aquaculture, carried through in order to align with the Common Fisheries Policy. In addition, a questionnaire was designed, studying **educational level and age profile, geographical mobility** and the **movement between fisheries and aquaculture**.

Looking at the overall picture, the project found that **aquaculture and coastal fishing could, with some caution, considered to be sustainable**.

**This conclusion is surrounded by a long list of caveats**. The most serious problems are commonly perceived to be the threatened and over-fished stocks on the fishing side and environmental impacts caused by intensive farming on the aquaculture side. Almost all the fisheries in the study areas are suffering from profitability problems and in aquaculture there is pressure from falling fish prices and strengthening competition. There is a perceived low legitimacy of central government but strong local support for fishing and aquaculture combined with weak power of these groups as stakeholders. Finally, there are clearly difficulties in balancing environmental and other sustainability targets.

“A SOCIO-ECONOMIC ANALYSIS OF THE PEOPLE WORKING IN FISH FARMS, FISHERIES AND OTHER LOCAL EMPLOYMENT SECTORS, AND OF INDUSTRY STAKEHOLDERS, WAS CONDUCTED”