Efforts to make fin-fish farming sustainable – Europe/UK

1. Policy Objective & Theme

- SUSTAINABLE USE OF RESOURCES: Sound use of resources and promotion of less resource intensive processes/products
- SUSTAINABLE ECONOMIC GROWTH: Improving competitiveness

2. Key Approaches

- Ecosystems based approach
- Technical

3. Experiences that can be exchanged

Countries wishing to begin the practice of fin-fish farming, or to expand their enterprises, can see the approach being taken in Scotland, UK.

4. Overview of the case

This case is looking at the latest strategic and legislative attempts, at European and national levels, to bring the farming of fin-fish to sustainability.

5. Context and Objectives

a) Context

European aquaculture produces around 1.3 million tonnes per year of marine shellfish (such as oysters and mussels), marine finfish (such as salmon and sea bass) and freshwater finfish (such as trout and carp). This represents 18% of the EU production of fisheries products (2005 figures). The main fin-fish species in terms of volume are rainbow trout (203,000 tonnes) and salmon (145,000 tonnes). By volume, the main producers are France (258,000 tonnes), Spain (222,000 tonnes), Italy (181,000 tonnes), UK (173,000 tonnes) and Greece (106,000 tonnes). By value, the main producers are France (€555 m.), UK (€498 m.), Italy (€476 m.), Greece (€345 m.) and Spain (€280 m.). The European Community accounts for 4.7% of world aquaculture in value terms and 8% of marine aquaculture production but is the chief world producer for most of the farmed species on its territory (trout, sea bass, sea bream, European eel, turbot). The Murcian coast of Spain is the biggest producer of fattened, captive tuna in the world. Cage fish farming is encroaching into the coastal tourist areas of Greece, the European leaders in sea bass and sea bream farming. Aquaculture represents 31% of the total value of European Union fish production. Sea cage fish farming accounts three times less production compared to shellfish but is by far the most important sector in terms of environmental aspects. For the European Union, the sector that provides jobs for 65,000 people.

The EU strategy for sustainable aquaculture adopted in 2002 set out policy directions to promote the growth of aquaculture. Although, seven years on, significant progress has been made in ensuring the environmental sustainability, safety and quality of EU aquaculture production, over the same period overall EU aquaculture production has stagnated. This is in stark contrast with the high growth rate in the rest of the world.

The environmental impacts of mariculture have received increasing international scrutiny. Sea cage fin-fish farming presents problems in terms of mass escapes, genetically modified fish, the spread of infectious diseases, parasite infestation, the reliance upon toxic chemicals, contamination of the seabed and the bio-accumulation of organo-chlorine pesticides such as dioxins and PCBs. It discharges untreated wastes directly into the sea and over 3 tonnes of wild fish are required to produce

one tonne of farmed salmon, for other marine fish this rises to over 5 tonnes.

In Scotland, 160,000 tonnes of salmon is farmed annually. It takes place almost entirely in floating net cages. The fish are fed with specially formulated pelletized diets, of which a small proportion along with faeces from the fish, are released from the cages and into the water column, to be deposited on the seabed. These discharges of waste feed and faeces, along with residues of medicines used to treat the fish when they suffer from diseases or parasite infestations, pose a risk to the environment

b) Objectives

The objectives of the strategies and legislation are to ensure a sustainable future for the industry and to boost the competitiveness of the sector and improve its governance.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

The responsibility for aquaculture enterprises, throughout Europe, is generally in the hands of the Ministry of Fisheries at national level.

b) ICZM tools

On 8 April 2009, the European Commission presented a communication to give new impetus to the sustainable development of aquaculture. Although the EU aquaculture industry meets high EU standards, its production has stagnated while it has continued to grow in the rest of the world. The communication adopted by the Commission identifies and addresses the causes of this stagnation. It aims to boost the competitiveness of the sector, ensure its sustainability and improve its governance.

Within the UK, Scotland has introduced a Strategic Framework for Aquaculture which details the measures that need to be taken. Operators wishing to establish a fish farm in the sea around Scotland must be granted a licence under the Water Environment (Controlled Activities) (Scotland) Regulations (2005). These regulations provide the Scottish Environmental Protection Agency (SEPA) with powers to ensure that activities which may pose a risk to the water environment are controlled. SEPA makes sure this is the case by setting limits on the amount of fish that can be held in the cages and thus the amount of food used. SEPA also protects the environment by limiting the amount of certain medicines that can be administered and discharged. In setting these limits, SEPA aims to ensure that the fish farm is operating within the capacity of the environment or in some sense is in harmony with the sea in the location in which it is sited. The process of determining what the appropriate size of the farm is for a given location is quite complex. Prior to submitting an application, operators are recommended to discuss their proposals with SEPA to avoid potentially costly difficulties and disappointment should SEPA determine that the proposals are inappropriate for the site concerned. The process of applying for a licence involves a number of steps and includes an advertising and consultation process. Details of the steps taken in the determination of a licence for a fish farm are described in detail in a fish farm manual (this is currently being updated and not available electronically). Applicants must also submit information on the physical, chemical and biological condition of the seabed. They must also measure the currents in the area and conduct computer modelling simulations showing how waste will be dispersed from the site. Following submission and advertising of the application, SEPA consider the proposals and either grants or refuses a licence. Where a licence is granted and a farm is developed, SEPA undertakes monitoring and inspections of the farm and the operator is required to commission regular studies of the impact of the farm on the seabed. SEPA recovers part of the cost of this monitoring regime through the levying of charges. Fish farmers also make data returns to SEPA detailing the scale of the discharges from each of their farm premises.

7. Cost and resources

No information is available.

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

All of the approximately thirty species of fish in European aquaculture production have shown a decrease in farm gate price as their production volume has increased, while improvements in production techniques have resulted in ever-increasing quality. Atlantic salmon and rainbow trout are almost exclusively farmed and are now comparable in price to land-farmed produce such as chicken and pork. Nonetheless, the highest levels of PCBs are still to be found in farmed salmon.

9. Success and Fail factors

The main source of contaminants in farmed fish, ironically, is fishmeal feed produced from wild fish. However, because this food can be sampled and analysed prior to feeding, maximum limits of contaminants in fishmeal and fish oil used in aquaculture have been established. The use of veterinary medicines has decreased, such as antibiotics, due to the use of better vaccines. “Sea lice” threaten farmed salmon in temperate waters. However, non-medicinal and environmentally friendly lice treatments are being developed. If aquaculture is to fill the gap in demand for seafood, this raises important sustainability issues as to the availability of sufficient feed supply since mainly carnivorous fish are being farmed. Over 50% of fishmeal and over 80% of fish oil is used for aquaculture.

10. Unforeseen outcomes

The availability of ‘new’ farmed species (sea bass, sea bream, cod, sole, scallops, octopus etc.) has the potential to provide an increase in affordability to all consumers. In addition, there are developing commercial interests in growing novel groups such as sea urchins and seaweeds.

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