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Socioeconomic effects of intensive cage culture

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Although the potential social and economic benefits of aquaculture development are clear, expansion of fish farming has brought this industry into conflict with other users of aquatic resources. This trend of increasing conflict with other forms of coastal development has also been observed in countries which are actively engaged in aquaculture.

Only a few attempts have been made to assess the effects of aquaculture development on tourism and recreation. In

general, however, such studies are subjective and it is difficult to obtain a clear understanding of the effects of aquaculture development. In recognition of some of the problems which have arisen, fish farming associations have produced codes of practice. The Scottish Salmon Growers' Association has produced a voluntary code to avoid visual impact of developments on the landscape. Some organizations, however, suggested that such codes should be integrated into planning procedures and be evaluated.

It is only recently that some countries have attempted to consider coastal zone management as an appropriate tool for ensuring the equitable and sustainable use of coastal marine resources. The Norwegian Government has implemented a scheme referred to as LENKA which includes an evaluation of the ecological, social and economic implications of all poten-

tial activities in the coastal region. The Provincial Government in British Columbia (Canada) has also developed a coastal inventory scheme for minimizing conflict between different activities by identifying potential locations for aquaculture and evaluating existing demands (industrial de-

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velopment, natural fisheries, tourism and recreation, and nature conservation on the coastal marine environment.

Any coastal zone management scheme should be designed to ensure that there is equitable use of coastal resources and therefore include an environment impact assessment of all potential developments. The localized ecological change brought about by the farm itself, can limit long term production. A detailed assessment of the potential ecological effects of development is desirable. An important feature of such an assessment is that it is proactive, the aim being to anticipate or predict the degree of ecological change and stop or modify the type and scale of production prior to development.

Such an approach requires a full understanding of the interaction between aquaculture and coastal marine ecosystem, an ability to model and hence make

quantitative predictions about the scale of these interactions, and finally the establishment of ecologically acceptable levels of change. With respect to the effects of the waste from intensive cage culture of fish, the interactions are known and models have been developed to predict the scale of these effects. There are few standards for acceptable levels of ecological change. In most European countries, there are strict controls governing the licensing of chemicals for use in aquaculture but in relation to the interaction between aquaculture and wildlife (including possible genetic interaction).

One of the benefits of appropriate coastal zone management schemes should be that the social, economic and ecological implications of each development are considered parallel. Furthermore, each development must be regarded as part of the total rather than as a discrete development which has no effect on existing or future activities. Proper coastal zone management schemes should allow the equitable and sustainable use of coastal marine resources, based on a broad range of activities.

Source: Gowen, R. and H. Rosenthal. The Environmental Consequences of Intensive Coastal Aquaculture in Developing Countries: What lessons can be learnt. In: Environment and Aquaculture in Developing Countries by RSV Pullin et al. 1993.