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Sustainable Aquaculture for a Secure Future

Title: Is lower intensity aquaculture a valuable means of producing food? An evaluation of its effects on near-shore and inland waters

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Abstract: The effects of aquaculture on the environment have been the subject of much examination, but most of the focus has been on shrimp and salmon. These are not the most common species grown in aquaculture, nor the most common systems used. About 60% of production today uses lower intensity culture to produce organisms in natural systems such as ponds. This paper is an overview of the positive and negative environmental impacts of lower intensity aquaculture. The ranked positive impacts of lower intensity aquaculture include: conservation aquaculture that supplements reproduction in natural populations; improving the quality of natural waters through filtering or consuming wastes by cultured organisms; reducing pressure on wild stocks by providing alternative sources in the market; and replacing damaging employment with more sustainable aquaculture jobs. Negative impacts include: escapement of alien species that become invasive; eutrophication of receiving waters from pond effluents; release of parasites and diseases into natural communities; escapement of unique genotypes resulting in genetic alteration of native stocks; land degradation due to pond construction; release of antibiotics or other drugs into receiving waters; depletion of natural resources such as water; loss of benthic biodiversity from settling of sediments; and reductions in natural populations by collection of larval or juvenile fish. Some impacts, especially the use of fishmeal and the transmission of disease, are much less common in lower intensity aquaculture systems. Aquaculture has an important role in current and future food production, and in many cases lower intensity aquaculture provides a sustainable solution to increased aquaculture production.

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