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A FULLY INTEGRATED MARINE ENVIRONMENTAL AQUACULTURE RECIRCULATION SYSTEM (MEARSTM) IN CONJUNCTION WITH THE ENVIRONMENTAL RECIRCULATION OF WASTE

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ABSTRACT In a Marine Environmental Aquaculture Recirculation System (MEARSTM), for a landbase total recirculation abalone farm, there are two distinct periods of seawater parameters that need to be managed. The day rate when abalones are mainly inactive requiring less seawater maintenance than the night rate when abalones are most active requiring far more seawater maintenance. It's uneconomical for a business to operate staff on a 24 hour 7 day shift and we need to rely on today's technology in order to maintain live stock. In order to maximize the company's profit, better equipment, that works in ways that have not been normally used, in the aquaculture industry is necessary. This means, testing water parameters, controlling equipment, monitoring, recording data and the use of fuzzy logic in the event of changing parameters. All this must be on a real time basis and accessible from anywhere in the world. In the 21st century, better environmental aquaculture practices along with increased demand for seafood requires the rethinking of waste production matched with recirculation of seawater. This process, along with the normal process of providing the right parameters for production becomes a total integrated system. A new combined system that covers all aspects of the operations (seawater parameters, feed requirements, environmental issues, reduce operating cost and improved data management) provides the ability to enhance aquaculture farming operations to maximize both production outputs and profitability. This paper will identify process improvements in the fields of; designing; controlling; maintaining; recording data; automation IT; environmental operations and the economical cost benefits for the aquaculture farming industry.

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