Automatic Dissolved Oxygen Control to Oreochromis Fish's Crop in Geomembrane Tank [

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text (article)

Analítica

Huila is a Colombian state with a high production of Oreochromis fish, its contribution to national production is of 53%, that is distributed in 338 hectares of ponds on land and floating cages. The environmental and climatic characteristics of the region allow having dissolved oxygen production in the ponds between 4ppm and 12ppm during the day, but at night the situation is unfavorable, since the amount of dissolved oxygen can decrease up to 1ppm while carbon dioxide increases. Therefore, it is necessary to have adequate oxygenation equipment and systems to prevent delayed in fish growth and to decrease death rates. This article presents the design and implementation of an automatic dissolved oxygen control system by manipulation of a water recirculation flow that operates in parallel with an industrial oxygen generator. The implemented system tracks and records the temperature and oxygen variables present in the geomembrane tank to evaluate the process evolution for different periods of the fish development cycle. The data was acquired using an Atlas Scientific dissolved oxygen sensor kit and a DS18B20 temperature probe they send the data directly to a Raspberry Pi that transmits by wireless the information collected from the process to the SISCEFA web server and a mobile application through which users can observe the data traceability. The dissolved oxygen concentration was maintained within the threshold established and the fish rate death decrease
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