# A System for Water Quality Monitoring at Taal Lake with Alert Warning and Aeration System using Arduino.

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- **Abstract:** In the Philippines, lakes are essential aquatic resources because they provide a source of income for the people who live around them. Aquaculture has had a devastating effect on our environment as a result of an increase in human activity. The quality of the lake water was deteriorated by intensive farming and recreational activities, which occasionally resulted in a fish kill. Ensuring environmental sustainability in the lake requires adequate water quality monitoring (WQM). In this study, a low-cost micro-controlled water quality monitoring system for freshwater under Class C was established. Various sensors, solar panels, batteries, microcontrollers, GSM modules, warning systems, and aeration systems make up the gadget, which is designed to resemble a buoy. An automated real-time data acquisition would be carried out at a pre-programmed interval of time. By using a short messaging service, the obtained data would be sent to various stakeholders (SMS). To communicate with a GSM network, a GSM module is used on the computer. During critical dissolved oxygen levels, the gadget has an automated alert system that will make a warning sound and signify that an aeration system will automatically work, supplying oxygen for the fish. There was no significant difference in the results obtained from manual and laboratory tests of BFAR in terms of water quality monitoring systems at the lake.