

Wireless Network Sensing and UAV Imaging as Resource Management Support for Philippine Lakes

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Challenges in Philippine Lakes:

- Household wastes into the lake
- Intensive Aquaculture
- Agricultural Runoffs
- Poor Water Quality
- “Fish kills”



Lake Palakpakin, San Pablo, Laguna



- How can lake stakeholders make better decisions?
- How can we monitor the health of the lake?

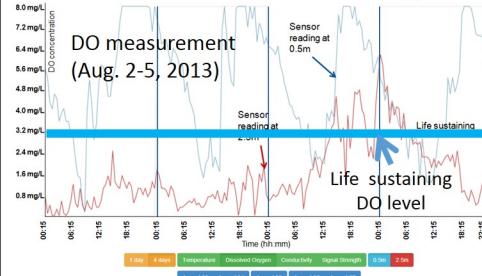
The lake community goals to achieve through sustainable lake management

Floating Field Server



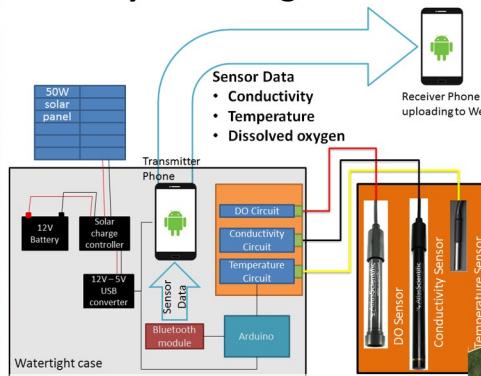
Field server measuring water quality at depths 0.5 m and 2.5 m

Water Quality

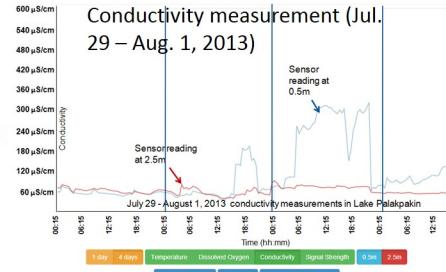


The critical problem in the lake is maintaining DO above life sustaining level up to 5m.

System Diagram



Sensor data is uploaded to the web using our SMS-based telemetry using Android phones.



Measured conductivity of water indicates the presence of runoff and nutrients in the lake.

UAV Imaging

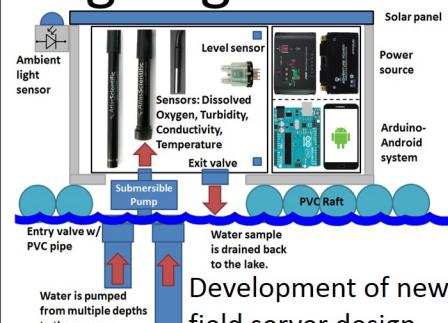


Lightweight custom UAV with cameras deployed over the Seven Lakes

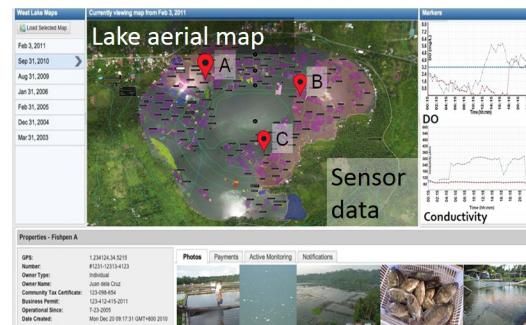


Aerial map of Lake Palakpakin – monitoring fish cage coverage and phytoplankton distribution in the lake

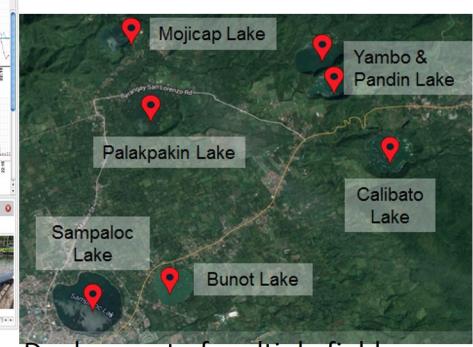
Ongoing Work:



Development of new field server design with pumping method



Development of a web-based decision support system



Deployment of multiple field servers in the 7 Lakes of San Pablo