



APPLICATION REPORT Water & Wastewater

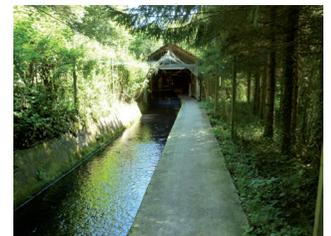
Level control of water supply at fish farm

- Raising of food fish (40 t) in water channel
- Continuous control of water level
- TDR measurement preventing water shortage or overflowing



1. Background

Ribogojstvo Goričar runs a fish farm in Podbočje, Slovenia, where food fish is raised commercially in channels supplied with water by an adjacent river. The fish farm is up to 1.5 m / 5 ft deep and separated into various basins with a total fish stock of 40 tons. It takes two years of growing until the fish is ready to be harvested and sold to the domestic fish market.



Fish farm of Ribogojstvo Goričar

2. Measurement requirements

Every change in the water level has an immediate impact on the fish stock. If the water channel runs dry, the fish consume more oxygen which leads to oxygen shortage and fish die-off within minutes. In the event of overflowing the fish threatens to cross the barriers between the various basins, thus mixing with different stock which destroys the diversity of the fish communities. The fish farm operator has so far controlled the water level with an ultrasonic level meter which, however, produced false measuring results. Therefore, the company was looking for a reliable level measurement to continuously monitor the water level.

3. KROHNE solution

The KROHNE sales representative recommended the 2-wire TDR guided radar level meter OPTIFLEX 1100 with a segmented coaxial probe and an integrated display. The contact level meter is installed in the stilling well, monitoring a depth of 50 cm / 20" and 100 cm / 39" directly next to the water inlet where the aquaculture is supplied with river water.

The device transmits low-intensity electromagnetic pulses along a conductor. These pulses move at the speed of light. When the pulses reach the surface of the water, the pulses are reflected with an intensity that depends on the dielectric constant (ϵ_r) of the river water. The device measures the time from when the pulse is transmitted to when it is received and calculates the accurate water level.

The time value is converted into a current output of 4...20 mA which is transmitted to a SCADA system that sends an alert via SMS to a supervisor when the water level exceeds a given limit.



Barrier between basins

4. Customer benefits

Using the OPTIFLEX 1100 Ribogojstvo Goričar no longer risks losing their fish stock due to water shortage. The fish farm operator stands to gain from a much better ability to respond. The device ensures that the fish farm never runs dry and also prevents fish from moving between the basins as a result of overfilling

The replacement of the ultrasonic level meter with the reliable OPTIFLEX 1100 enables the customer to meet its measuring targets. The cost-effective instrument is especially engineered for general purpose use such as measuring water levels. There was no special expertise required to set up the level meter. Its menu navigation allowed for easy configuration without opening the housing.



OPTIFLEX 1100 at measuring point

5. Product used

OPTIFLEX 1100

- 2-wire loop powered TDR guided radar level meter for liquids and solids
- For general-purpose use (non-hazardous areas)
- Reliable measurement even in basins or tanks with moving surfaces, foam or inserts
- Measuring up to a height of 20 m / 65.6 ft (liquids) – 10 m / 32.8 ft (solids)
- Cost-effective and easy to install



Contact

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