



CASE STUDY SUMMARY

Application: Anti-fouling technique adopted in Eureka probes of the Ajman waters in UAE

Location: Ajman, UAE

Client: Ajman Municipality, UAE

Integrators: ELARD

Products used: Eureka Manta 3.5 Probes with Sutron GPRS Link Datalogger

Measured parameters: PH, Dissolved Oxygen, Temperature, Conductivity, Salinity, Total Dissolved Solids, Refined Oil, Turbidity, and Chlorophyll.

January 18, 2018

Introduction:

Bio fouling or biological fouling is the accumulation of microorganisms, plants, algae, or animals on wetted surfaces. Bio fouling is now the key factor in determining the length of time a water quality instrument can stay deployed, particularly in long-term, continuous monitoring applications.

Antifouling is the ability of specifically designed materials and coatings to remove or prevent bio fouling by any number of organisms on wetted surfaces. Since bio fouling can occur almost anywhere water is present, bio fouling poses risks to a wide variety of objects such as water quality monitoring probes and membranes, as well as to entire industries, such as paper manufacturing, food processing, underwater construction, and desalination plants

Overview: Ajman municipality | Environment Department & Natural Resources Conservation

Ajman Municipality, Environment Department, Natural Resources Conservation Section, had installed six water quality monitoring Stations with ELARD as its integrator for monitoring creeks and water surfaces in Ajman city, United Arab Emirates. In order to monitor the water pollution and challenge the environmental variables.

ELARD being a supplier of Eureka quality probes over the region had supplied, installed and maintained many similar project around the Middle East Area.

ELARD faced many problems to maintain and operate the water quality monitoring stations due to the extensive growth of biological organisms on water probes and the harsh environment.

The conductivity values will reach around 70mS/cm and the salinity around 50pps

Fouling problems:

Without any anti-fouling precautions, either probes would have likely begun to experience drift by as soon as week 2 or 3 in this environment or sensors damaged within one month due to heavy saline condition and extensive growth.

Below pictures illustrates the condition of the probe without anti fouling techniques



Solution:

ELARD adopted series of measures to solve the problems related with bio fouling issues and reduce the growth of biological organisms on instruments by following below techniques

In addition to the proper site visit which is essential for any long term monitoring system, we used.

Copper mesh: copper-gauze anti-fouling kits; 5" x 30"

We used Eureka supplied copper mesh to wound around the sensor guard to avoid strong growth on the sensors which may even eat up the epoxy of the sensor body

Duct Tape & Packing Tape: purchased from local shops

This will protect the probe body and help us cleaning the equipment quicker. We always recommend to use proper safety tools while performing the task

Results:

The Probes which is equipped anti-fouling components performed well over a 30 days deployment and we observed that the probe was performing well, without any signs of bio fouling accumulation on sensors and drift in values.

This helped us in reducing our site visit, increased the life of sensors and cleaning the equipment quicker.

Below pictures illustrates the condition of the probe after anti fouling techniques are removed

