

## **CASE STUDY – ESTUARINE MONITORING**

### **PREAMBLE**

Monitoring of estuaries is critical to ensuring the food safety of many aquaculture products. Oysters for example are 'filter feeders'. In other words they feed on the water that passes by and as such their 'condition' and 'safety' is very susceptible to water quality. As oysters are generally consumed un-cooked it is imperative they are only harvested at times when the water is clean and free from contaminants.

Responsible oyster growers work very hard to avoid foodborne incidents from consumption of oysters by the public not only because they are responsible people but also because of the damage it can cause to their product category.

### **ESTUARY CLOSURES**

Traditionally estuaries are deemed to be open or closed for harvesting by 'rainfall'. Rainfall is important because contamination of the estuary most often comes from land-based run-off. Sewerage tanks, run-off from pastures where animals graze and industrial run-off are just some of the general causes of contaminants.

The problem with rainfall as a determinant of 'closure for harvesting' is that it is an imprecise measure. Rainfall and run-off do not always correlate and as rainfall is only measured at certain points along an estuary it does not truly represent the harvest conditions where oyster growers farm nor is it always a true indicator of the incidence of run-off. It also can never take account of the effect of tidal flows on water quality.

The problem for oyster farmers is that in their efforts to avoid harvesting contaminated product there is a high probability there will be times when the water is clean but the estuary is closed. This means that farmers will unnecessarily lose precious revenue and also let down their wholesale partners that depend upon them for certainty of supply.

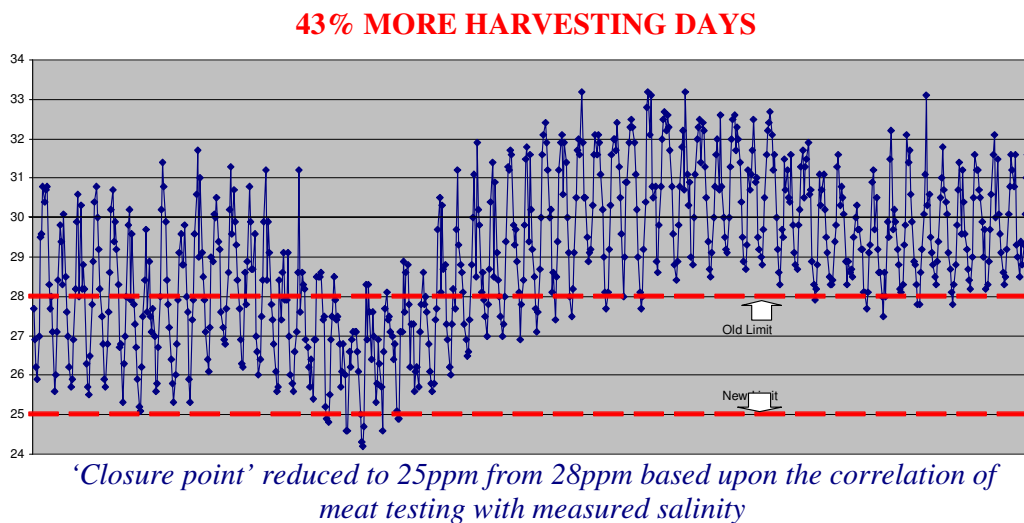
### **SALINITY MONITORING**

Salinity monitoring is a far more certain means of determining water quality and when used properly enables the effect of tidal flows to be considered.

Data Acquisition Networks has worked collaboratively with oyster farmers and food safety authorities to develop a robust method of salinity monitoring. Probes located at selected points along an estuary can measure temperature and

conductivity of water and wirelessly transmit that data to a central collection point from where the data is transmitted to the DAN website. As DAN offers a 'Derived Data' function, the transmitted data can be instantly calculated into a salinity measurement that can be used for determining harvest area closures. The DAN system also sends instant alarms to designated people who can include estuary committees and/or food safety authorities. The whole system works seamlessly and reliably and can be put in place for a very small cost compared to the risk of 'reputation loss' or 'erroneous harvest area closure'.

By correlating meat testing with salinity the 'ppm' reading for closure can be refined to ensure closures never occur needlessly. The following graph shows how one harvest area was able to achieve 43% more harvesting time with the use of DAN salinity data.



## TECHNOLOGY HELPS FARMING

Farmers around the world across numerous agricultural industries are accepting that technology can be an enormous assistance to their business. In this case the use of DAN automated monitoring technology has helped one aquaculture community through its estuary committee to better ensure its future.