Collaborative technology to monitor the freshness of oysters

The oyster industry – and oyster lovers around Australia – will be the beneficiaries of a new advance in temperature monitoring developed by the University of Tasmania and Hobart-based company ConTag Systems Pty Ltd (ConTag).

The University and ConTag have teamed up in the commercial application of technology which is aimed at providing reassurance to oyster growers and eventually to consumers about the shelf life of oyster shipments.

The University has granted ConTag a licence to commercially exploit the Oyster Refrigeration Index (ORI), an algorithm developed by the Australian Seafood CRC, research in which the University participated.

The ORI is to be used in conjunction with a rugged time-based temperature sensor that ConTag has developed. The sensor is included with an oyster shipment, storing temperature data over the entire transport phase in a fashion that can be coupled with the ORI to produce a prediction of oyster health and merchantability.

"This licence is just one example of UTAS' commitment to create impact from the technologies we develop," the Director of Business Development & Commercialisation, Dr Darren Cundy, said.

"By partnering with private industry we create a path to market where our research innovations can create community benefit.

"The most ambitious example of this strategy is the creation of the world's first economy-wide sensor network, Sense-T. Like the ORI-ConTag partnership, Sense-T is starting with food production but will use sensors across other industries to build a digital view of the complex relationships across an economy."

Dr Cundy added that the University was also collaborating with CSIRO in the development of another oyster industry application in the form of a bio sensor.

Professor Mark Tamplin and Dr Judith Fernandez from the Tasmanian Institute of Agriculture's Food Safety Centre developed the ORI. Professor Tamplin said that one of the more common contamination risks to oysters is *Vibrio parahaemolyticus*, a natural bacterium found in seawater whose growth rate is sensitive to temperature.

V. parahaemolyticus in Tasmanian oysters is relatively rare due of colder seawater temperatures, but is more commonly found in warmer waters of mainland Australia and overseas. The ORI will allow companies to predict how *V. parahaemolyticus,* if present, might increase in supply chains, particularly for products exported into markets that test for this bacterium.

"Until recently there has been insufficient information about how fast *V. parahaemolyticus* grows in Australian oyster species at different storage temperatures, but now the ORI has been field-tested with Pacific oysters and shown to make reliable predictions," he said.

The Director of ConTag, Michael Jarvis, explained how his company's unique temperature data logger, the TTI Post Tag, will work with the ORI technology.

"The tag is included with a shipment of oysters or placed in an area being monitored. When the oysters reach the end of their journey, the tag is returned to ConTag via Australia Free Post.

"When ConTag receives the tag, we use the temperature data to run the ORI model and can provide estimates of bacterial growth to the oyster growers within 24 hours.

"For now, the technology is principally providing operators with confidence that their produce is being shipped under the right conditions," Mr Jarvis said. "However that's just first generation. When we release our GPS-enabled version we will have the ability to analyse near real-time data, so that retailers can make evidence-based decisions about the oysters they are putting on their shelves."

http://www.contag.com.au/