FIVE stars

A shellfish producer in Dorset is helping to assess the potential of 5G telecoms

BY ROBERT OUTRAM

This year, Dorset in the south west of England will be the setting for a ground-breaking project aimed at exploring how 5G telecommunications can transform food production. The 5G RuralDorset project, led by Dorset Council and part-funded by the Department for Digital, Culture, Media and Sport's 5G Testbeds and Trials Programme, is aimed at understanding how next generation connectivity can help rural communities. The project is one of a half dozen industry-focused initiatives throughout the UK, and the largest within the agriculture and aquaculture sectors.

Understanding how 5G can be used to address specific challenges in food production is a key research area within the project. The agriculture and aquaculture trials, led by Wessex Internet, involve farms from across the county, including two large arable farms in North Dorset, a mixed farm at Kingston Maurward College – and Jurassic Sea Farms, which grows shellfish and seaweed in a site in Portland Harbour.

Digby Sowerby, Wessex Internet Project Manager for the 5G Rural Dorset project, describes the initiative as an "accelerator project". As he explains, investment in state of the art equipment and end-user hardware for 5G is expensive, especially as it is not yet in mass production. Government funding makes it possible to identify and test applications and assess which might deliver practical benefits.

He says: "Our aim is to deliver a 5G system that is reliable, affordable and interoperable [working across different systems]."

As Digby Sowerby explains, there are three main "types" of 5G: low frequency, which will give good public coverage even for remote areas; high frequency communications using private installations, capable of transmitting large amounts of visual and other data easily; and a very high frequency that can transmit massive amounts of data in a small area, up to 200 metres.

Rural areas typically have patchy 3G or 4G coverage at best, so farmers on land or sea have a problem when using new technology – like drones, robots or monitoring equipment – because data has to be transferred physically rather than transmitted wirelessly. The 5G revolution could change all that.

Jurassic Sea Farms (originally the Dorset Seaweed Company) was formed in 2018 by Native

Below: Richard Prickett; Digby Sowerby
Below right & Opposite: Jurassic Sea Farms crew

"Whatever comes out of the 5G project has to make life easier for the farmers"

Marine Centre (NMC) and Hugh Wiltshire. Nigel Bloxham, owner of the Crab House Cafe and oyster farm, also became an investor in 2019.

Richard Prickett, a director with Jurassic Sea Farms, says their 5G project will focus on two main applications: measuring and monitoring key parameters, and introducing an underwater camera system.

Prickett says: "We have got a remote site which you need to monitor in a number of ways, and as easily as possible."

Remote monitoring reduces time and costs, he adds. Key parameters are likely to include dissolved oxygen levels, chlorophyll and water temperature. On the latter, the farm has a specific responsibility to report to the regulator, Natural England, if the sea temperature rises above 20C. This is because the main shellfish crop consists of Pacific oysters, a non-native species, which are more likely to spawn above that temperature – although the Jurassic Sea Farms oysters should all be sterile, triploid oysters the precaution is still necessary.

He adds: "Using a camera will help us to see how fast the seaweed is growing, to optimise cropping."

Jurassic grows two native kelp species, using seeded lines. Combining the seaweed farm with growing oysters is a multi-trophic approach that should enhance production for both.

Another use for the camera will be monitoring predators, whether for the seaweed or the shellfish. Portland Harbour is home to dolphins and many larger fish species. 5G communications, it is hoped, will mean that key data can be transmitted directly to the farm staff without frequent trips out to the site itself.

Other trials within the project include using drones which can transmit data directly to the farmer, a monitoring system using tags and cameras to monitor the health of cows and a wheat farm run by robots. As Martin Sutcliffe, Aquaculture and Fisheries Officer with the Dorset Coast Forum, puts it: "Whatever comes out of the 5G project has to make life easier for the farmers." FF

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