



Kingfish reservoir

Fish are King in sustainable farm

The Kingfish Zeeland fish farm has been operational on the Zeeland Colijnsplaat for a few years now, a brand-new company where the special fish species 'Yellowtail Kingfish' is grown in a sustainable way. For all pumps that have to run with extremely high reliability in this warm saltwater environment, there has been intensive cooperation with Grundfos.

Kees Kloet is the COO of The Kingfish Company and one of the initiators of the eponymous farm where the so-called 'Yellowtail Kingfish' is grown, a species of fish that grows well in the Dutch climate and is considered a sustainable alternative to tuna. By breeding these fish in captivity – from larva to adults – the company contributes to the prevention of overfishing of the sea. It is also no longer necessary to import fish from Australia or Japan in order to meet the European demand. But not at all costs.

RECIRCULATING AQUACULTURE SYSTEM

A large and reliable system is needed to bring the daily required amount of water to the farm. With this Recirculating Aquaculture System (RAS), the water is continuously pumped through a water treatment plant and then reused. It also supplies fresh seawater and drains 'old' seawater. Every day, about 30% of the total amount of about 5,000 m³ of seawater is replaced.

Capacity and head

Grundfos engaged in the construction of this professional system, a party that primarily saw the issue as very challenging and was eager to get to work on it. The challenge lay in, among other things, the combination of a large capacity at a very low head. Application specialist Erik Tijssen: "The solution for this was eventually found in the application of three clusters, each with six – parallel-connected and



"I only want to grow fish in a sustainable way, and we can do so by letting the fish grow up on land, while using 'real' seawater from the immediate vicinity. For that reason, we had chosen this location on the Oosterschelde in Kats."

Kees Kloet
Founding Partner & COO of The Kingfish Company

frequency driven – norm block pumps. This combined sufficient capacity, good efficiency and high redundancy."

Industry project manager at Grundfos, Marcel van Veen, adds: "The pursuit of optimum efficiency in combination with high reliability is a common thread throughout the project. This is especially easy to understand when you consider that the RAS has to run 24/7 and that over a hundred pumps are used in the farm. Because all pumps are frequency driven, it is possible to adjust them very accurately to the optimum working point. This certainly contributes to a good efficiency. The pump systems are designed redundantly, which means that the operational process is never jeopardized if a pump fails.

Salt and heat

A second challenge lay in the medium to be pumped: salty seawater with a temperature of up to 25 °C. Corrosion is guaranteed when using a standard pump. That is why special seaworthy pumps have been used for the RAS: standard cast iron versions that have a special ceramic coating on the inside and a duplex interior. A solution that proved to be both effective and affordable.

PROJECT PROGRESS

Both parties are enthusiastic about the end result, as well as about the collaboration. "I did a first pilot with this way of growing about eleven years ago," says Kloet. "This was still in IJmuiden and at that time I was already in contact with Grundfos. Ultimately, the selection of the pumps was made in collaboration with a Danish construction company that is familiar with this way of breeding fish and with Grundfos. So, they know better than anyone how such an installation should look like and the cooperation between the companies was really more than excellent."

The many pumps have been performing perfectly for some years now. Since the start, production has increased significantly and is still growing. And as for the Yellowtail Kingfish, those can be ordered now in the finest restaurants.



GRUNDFOS pump installation at Kingfish Zeeland

GRUNDFOS Americas
Brookshire, TX 77423

www.grundfos.us
www.grundfos.ca
www.grundfos.mx

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