

Afrox comes to the fore as local market leader in aquaculture technology

Reflecting a global trend, aquaculture — the farming of fresh-water or salt-water marine species in controlled environments — is poised for significant growth in South Africa. In the past five years there has been slow but steady growth in this industry, notably in the prime East London industrial development zone, where the Eastern Cape Development Corporation has identified aquaculture as one of eight growth sectors aligned to the provincial government's industrial development strategy and offered incentives to encourage local fish farming.

As part of its own corporate strategy to strengthen its position as a major regional service provider in the Eastern Cape, gas giant Afrox has come to the fore as the local market leader in aquaculture technology, backed by its parent company, The Linde Group, the global leader in this arena.

“Linde continues to invest heavily in developing the necessary technology to support the anticipated expansion in world aquaculture and this cutting-edge technology is readily available to the South African market,” says Afrox’s Gareth Jones. “With demand for food supply intensifying year on year, global forecasters predict that in the not-too-distant future, the average family is likely to find fish on the dinner plate far more frequently than protein from land-reared animals. The population needs large supplies of protein and it costs significantly less to cultivate fish than to raise land animals such as cows, pigs and poultry for slaughter. This scenario is expected to drive the world food business into the direction of aquaculture with increasing momentum in the years to come.”

Afrox is currently supplying bulk oxygen through long-term supply agreement to Oceanwise, the local industry leader in land-based marine aquaculture, which is cultivating Dusky Kob, also known as Kabeljou, in the area.

Craig Clayden, Oceanwise General Manager, comments: “We’re looking to supply local and export markets and intend to diversify into other fish species in the long term.”

Kob belong to the scientific group of fish named the Sciaenidae which are common throughout the world. About nine species are found off South Africa including the Silver Kob and Dusky Kob, both of which are targeted by recreational and commercial fishers as the flesh makes for excellent eating. Dusky Kob are a predatory fish that can tolerate marine and brackish waters and are frequently found in estuaries and lagoons as well as in shallow waters close to the shore. This makes the species particularly vulnerable to overfishing, but also well suited to fish farming because of their ability to withstand fluctuations in salinity, temperature and oxygen levels.

“Dusky Kob is a member of the drum family because of the sound they can produce using specialised drumming muscles,” says Clayden. “It’s not uncommon to hear the brood stock drumming away through the night after we have induced them for spawning. When the night shift staff report hearing the drumming sound, we know we can expect eggs in the collectors the following morning.”

Jones says that controlling the concentration of dissolved oxygen in water is crucial to the success of aquaculture. The use of Linde’s application technology and pure oxygen helps to maintain optimal dissolved oxygen concentrations in water. The efficient dissolution of oxygen in water, without over saturation in nitrogen, provides the ideal environment for healthy and consistent fish growth. Maintaining the right levels of oxygen improves feed utilisation conversion, increases specific growth rates (SGR), and produces noticeable improvements in

tank hydraulics. In addition, maintaining adequate oxygen levels improves resistance against diseases and as a consequence a reduced mortality rate, faster growth and a larger size fish can be achieved.

“Linde has been involved in fish farming since the early days of this industry and its extensive experience and on-going research and development today deliver the latest technology and know-how to the world’s foremost fish farmers,” says Jones. “The advanced oxygenation solutions on offer are key to the development of a sustainable aquaculture industry in South Africa.”

For fish contained in tank farms, it is critical that DO water levels range from 5-12 mg/l in order to sustain a healthy and growing environment. Below 4 mg/l the fish may stop feeding, become stressed and begin to die. Oxygen saturation is linked to the water temperature – the higher the temperature, the lower the saturation levels. Due to the hot South African climate, this becomes a major issue for fish farmers and this is where the Linde SOLVOX® technology comes to the rescue.

SOLVOX® is The Linde Group’s registered trademark for water oxygenation equipment, a product line that offers a wide range of oxygenation systems for the aquaculture industry. The SOLVOX® family comprises equipment for optimised dissolution of oxygen in water, perfect distribution of oxygenated water to the fish, and dose adjustment applications for smooth and reliable operation. Each aquaculture facility, type of water and fish crop has different requirements which can be met, in combination, by elements drawn from the SOLVOX® product family.

One example of the SOLVOX® product range is the SOLVOX® C oxygenation cone. This lightweight but durable cone has a gas transfer efficiency close to 100% under standard conditions and can cater for water flows up to 110 m³/hr.

Another example of the SOLVOX® product range is the SOLVOX® A series of dissolving units. The SOVLOX ® A system can easily be integrated into the water pipeline feeding the tank and will achieve optimum distribution of dissolved oxygen using minimal energy demand.

“The ability to service the local aquaculture industry with the latest world class technology is just one area of gas solutions in which we excel in the Eastern Cape,” Jones concludes. “In this region, Afrox provides gas products across a spectrum of other market segments. While our biggest customer segment comprises automotive and component manufacturers in the region, other key customers include the healthcare sector, both state and privately owned, and the hospitality market, as well as local agricultural undertakings. Afrox is also a major supplier of LPG to the rural and urban domestic market in the region.

“As part of our commitment to providing our Eastern Cape customers with the uninterrupted supplies of the gases they need to operate efficiently, we’re currently making a R300m investment in a 150 tonne per day state-of-the-art air separation unit (ASU).”

“Afrox has a depth of understanding when it comes to considering the application of our products in customers’ production processes and, rather than being a commodity-driven supplier, we offer innovative and cost-effective solutions to support these processes. This means partnering with the client from inception to finished product.”

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