



StofnFiskur



# Low-energy path to increased production capacity

SOLVOX<sup>®</sup> OxyStream improves oxygen  
dissolving efficiency at Stofnfiskur



# Stofnfiskur success story



## Highlights

- Reduced oxygen consumption
- No maintenance required
- Reduced work hours required to run the oxygen system
- Water current much better in the tank and much easier to control
- More stable oxygen concentration in the tank and easier to control
- Strong indications of improved fish growth rates (final figures pending)

## Customer

Based in Iceland and part of the Benchmark Group, Stofnfiskur is one of the world's leading companies in selective breeding and production of Atlantic salmon ova. The company's main activities are salmon ova and fingerling production, selective breeding of Atlantic salmon, research and development, and domestic and international specialist advice on egg production and supply. Stofnfiskur has a production capacity of 200 million eggs and can deliver disease-free, fast-growing and robust salmon eggs worldwide to the fish farming industry every week of the year.

## Challenge

The company runs fish farming operations at five different locations in Iceland. Typically, it relied on a ceramic diffuser system to distribute oxygen throughout its land-based tanks. However, Stofnfiskur was keen to upgrade this system for salmon brood stock and lumpfish (cleaner fish) tanks at Kalmanstjörn, Vogavík and Hafnir.

In particular, the company wanted to improve oxygen dissolving efficiency and thus reduce



gas consumption while increasing fish production capacity. It was confident that better hydraulics would result in a more even current throughout the tanks and this would, in turn, distribute the feed better and promote fish health and wellbeing. **Maintenance was another issue that Stofnfiskur was looking to address.** The system in use required regular servicing, and tank cleaning was proving time-consuming. Essentially, a service intervention of some sort was required every day. Last but not least, **company management was keen to cut electricity bills.** The large number of cones in operation were an energy drain.

## Solution

AGA, member of The Linde Group, had been Stofnfiskur's trusted gas supply partner since 1986, responsible for bulk supplies of both oxygen and nitrogen for freezing. So Stofnfiskur turned to AGA for advice. **AGA's application engineers suggested SOLVOX® OxyStream and arranged a trial for Stofnfiskur to evaluate the potential efficiency gains.** Jón Reynir, Technical Manager at Stofnfiskur was instantly converted: "We immediately saw that **SOLVOX OxyStream was a big improvement for us – it is an extremely effective system.**"

So Stofnfiskur decided to install SOLVOX OxyStream units in 12 of its 50 12-meter tanks. To ensure smooth start-up, AGA provided sizing, customization, installation and optimization support for the initial six-month trial, also helping to integrate the OxyStream units into the carbon dioxide degasser in use at Stofnfiskur. The low-pressure, low-energy design of SOLVOX OxyStream meant that the remaining water pressure after carbon dioxide degassing was sufficient for OxyStream to oxygenate the water, strip nitrogen, and create optimal tank hydrodynamics. No additional water pumping action was required.

Before the trial had even been completed, Stofnfiskur experts had already made up their minds and placed a follow-up order. Since then, the company has gradually extended SOLVOX OxyStream to all 50 of its 12-meter tanks and is more than happy with the results. "We like it a lot. Before we even completed the first trial, we had placed a follow-up order and have been gradually rolling SOLVOX OxyStream out to our remaining tanks ever since. The system is stable and we receive excellent service and support from AGA," continues Jón Reynir.



## Benefits

Stofnfiskur has achieved all of its efficiency targets with the new oxygen diffusion solution. It has reduced oxygen consumption per kilo of fish produced while simultaneously enhancing fish growth and health. In the words of Jón Reynir: “We reduced oxygen consumption in 2018 by 17% relative to the 2017 baseline with the same biomass productivity – just as a result of installing SOLVOX OxyStream in many of our tanks. To date, we have only retrofitted around half of our fish tanks with SOLVOX OxyStream. So we actually expect an even higher reduction once we have equipped all tanks and can observe the effect over a full year. Based on guidance from AGA, we also plan to change how we control the oxygen flow to each tank, and this will help to reduce our oxygen consumption even further overall.”

Optimized hydraulics not only improves the current but also distributes the feed more evenly and facilitates waste collection. “We see a big difference in the current; it is much more even now – excellent really,” adds Jón Reynir.

Because SOLVOX OxyStream does not require its own power source, the new setup is more energy-

efficient, with all power now being supplied to the degasser. In addition, the virtually maintenance-free design of SOLVOX OxyStream is proving to be a real highlight. “The self-cleaning design of SOLVOX OxyStream is a big bonus. We save a lot of time previously spent cleaning tanks and replacing stones – now we have zero maintenance,” explains Jón Reynir.

## Future Plans

In the short term, Stofnfiskur plans to extend SOLVOX OxyStream to all of its 35 10-meter tanks and to the expansion plans for lumpfish at Hafnir. Looking further to the future, Jón Reynir could also envisage rolling it out to other Benchmark fish farms at locations such as Chile and Norway. “Based on my experience here, I would warmly recommend SOLVOX OxyStream for all of our operations. It’s totally maintenance-free, we have a steady flow which is easy to adjust, the oxygen is being put to excellent use and it’s helping us to reduce nitrogen. So that’s a lot of benefits that we can take forward to other farms.”



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Jón Reynir, Technical Manager at Stofnfiskur

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## Linde plc

Gases Division, Carl-von-Linde-Strasse 25, 85716 Unterschleissheim  
Phone +49 89 31001-0, [www.linde-gas.com/aquaculture](http://www.linde-gas.com/aquaculture)