RAS2020™
Advanced Recirculating Aquaculture System
Fish Farming of the Future
Fish Farming of the Future is Here

The future is now.
Introducing Veolia’s patented RAS2020™, a modular recirculating aquaculture system designed to reduce capital costs, maximize production, minimize operating costs, and improve sustainability.

The Opportunity for Land-Based Aquaculture
The demand for quality seafood and sophisticated consumer purchasing trends have increased. This combined with the environmental and financial risks of off-shore aquaculture create the need for farmers to gain greater control over their operations. Land-based RAS (Recirculating Aquaculture Systems) is a solution for aquaculture companies to reduce risk, while maximizing profitability.

Farm-to-Table Fresh
Geographic challenges make it difficult and expensive for some regions to receive fresh seafood. The RAS2020 allows farmers to achieve a farm-to-table strategy by locating facilities on land near key markets. This reduces shipping costs and shortens delivery timeframes, while offering consumers a superior fresh product.

Biosecurity
The biosecurity of the RAS2020 is based on full control of the incoming potential risks. The system includes comprehensive treatment of the incoming water (filtration, ozone, UV), a biosecure gate for personnel entering the facility (to change clothing and footwear), and full-control and separation between biosecure and non-secure areas.

Key RAS2020™ Benefits
- 99.5% of the water is treated and recirculated
- Up to 50% reduced footprint
- High-quality, uniform flow, mimicking a natural aquatic environment
- Efficient facility design that ensures biosecurity
- Reduced operating and utility costs
- Reduced handling to minimize fish stress
- Proven water treatment processes
- Optimized feed conversion ratio

Cost-Effective Design

Controlled Aquacultural Environment
The RAS2020™ has a number of advantages compared to conventional RAS solutions

Operational Efficiency
- Reduced energy costs
- Lower manpower needs
- Excellent conditions for management and safety
- Sorting and grading equipment can be placed on the central platform, reducing distances during the fish handling process
- Harvest can be efficiently performed by the staff, without disturbing or starving the main fish population
- Optional protein skimmer with ozone injection in RAS loop

Advantages during construction
- Reduced building footprint (only 36,000 ft² / 3,340 m² per module)
- Reduced costs of construction materials
- No underground piping to reduce construction risks and bio-growth
- Expedited construction and start-up
- Lower land impact – up to 50% less

Superior Aquatic Environment
The RAS2020 creates a highly-controlled environment that supports healthy fish growth.

The proprietary circular raceway and flow control system creates a uniform hydraulic velocity that can be adjusted in the inner and outer tank sections. This allows the fish to naturally swim within the tank area. The flow combined with the system’s superior water quality helps reduce fish stress, improve growth, and ensure a quality final product.

Water Quality Performance Guarantee
The RAS2020 is delivered with a performance guarantee of specified threshold levels of key water parameters to secure optimal fish welfare at maximum production.

Cost-Efficient Design

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Revolutionizing Aquaculture
RAS2020 System Design

1. Purge Tanks
2. Hydrotech Drum Filters
3. UV Filters
4. AnoxKaldnes™ MBBR, Fish pump, Grader and Counter
5. Axial Flow Pumps
6. CO₂ Degasser
7. Medium Head Oxygenation Units
8. Inlet of treated water to Fish Tank
9. Outlet from Fish Tank to Water Treatment System and Flow Makers
10. Feeding System
11. Control Room
12. Processing

FEATURED SUSTAINABLE AQUACULTURE PROJECT
Sashimi Royal in Denmark has received the certification from Aquaculture Stewardship Council (ASC) as a sustainable and quality seafood producer.

Watch an interview with Claus Rom, CEO of Sashimi Royal
www.veoliawatertech.com/aquaculture

SELECTED REFERENCES OF LAND-BASED
RAS2020™ FISH FARMS
- Salmon – Swiss Alpine Fish, Switzerland
- Kingfish – Sashimi Royal, Denmark
- Salmon – Fredrikstad Seafoods, Norway
Resourcing the world