

# Fish Processing Wastewater Treatment

## BENEFITS

- ✔ Fast installation
- ✔ Sustainable development
- ✔ Lower wastewater fees
- ✔ Cost-efficient wastewater handling
- ✔ Minimal infrastructure

## Reduce Environmental Impact

Environmental concerns, wastewater fees or meeting emission limits can be challenging for any fish farm or processing plant. To help you out, we formed a team of wastewater treatment experts from Roxia and Owaterc. With innovative solutions, we help you set up environment-friendly processes and improve economic efficiency.

### Apply Eco-Friendly Onsite Treatment

- × Pretreat wastewaters onsite before discharge to public sewer network
- × Remove trouble-making substances like FOG (fats, oils & grease), solids and harmful pollutants
- × Discover opportunities to repurpose material streams from wastewater

### Bring Down Wastewater Costs & Fees

- × Significantly improve discharged wastewater quality
- × Reduce emission fees per volume
- × Avoid costly problems from accumulating FOG and solids • Prevent penalty fees from exceeding emission limits

### Best Available Technology & Associated Emission Levels (BAT-AEL)

- × State-of-the-art technologies for meeting BAT-AELs
- × Proven performance in fish processing wastewaters
- × Remote monitoring and IIoT systems for user-friendly operation and KPI reporting



We understand the wastewater treatment is not your core business. That is why we also offer setting up the wastewater treatment processes.

### BENEFITS

- ✓ Sustainable development
- ✓ Reduced wastewater treatment costs
- ✓ Lower wastewater fees
- ✓ Fast installation
- ✓ Remote monitoring, analytics & control



With innovative solutions, we help you create environment-friendly processes as well as better economic efficiency.

## Wastewater Treatment for Fish Industry

### Save Time, We Can Handle the Waste

Roxia offers wastewater solutions for the industry from fish growing to final products:

- × Fish farming
- × Fish processing
- × Fish meal production



Together we plan the service based on your particular needs to better handle all day-to-day issues concerning waste streams.



The installation of containerized wastewater treatment units is fast and cost-efficient.

### Strong User Support

We understand the wastewater treatment is not your core business. That is why we also offer setting up the wastewater treatment processes. Together we plan the service based on your particular needs to better handle all day-to-day issues concerning waste streams. And you can concentrate on running and developing your core business.

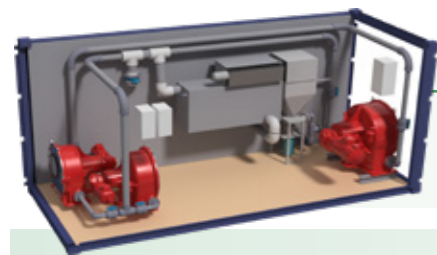
Our wastewater treatment services for fish processing include:

- × Problem solving and consulting
- × Testing and piloting
- × Basic engineering and design of the wastewater process
- × Fast delivery of a wastewater treatment system
- × Process optimisation
- × Remote monitoring, analytics & control

## Fast Installation

### Containerized unit operations

To avoid expensive and time-consuming investments, we offer containerized units for different wastewater treatment processes (screening, chemical dosing, flotation, etc). Each unit is engineered for a specific process, ready to plug and play. The units can be combined into a tailored wastewater treatment solution. The system comes with full process automation required for reliable and safe operation. Integrated online monitoring keeps you up-to-date about process operation at any time and any place.



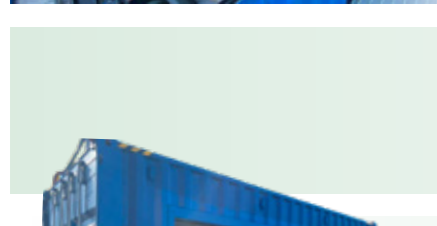
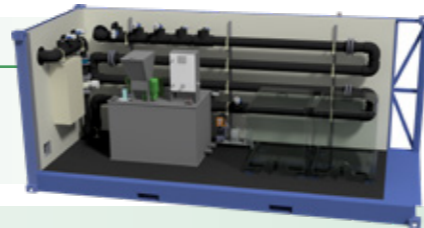
#### Inlet Unit

- × Transfer pumping
- × Screening
- × Other optional pre-treatment



#### Chemical Dosing Unit

- × Dosing and mixing systems
- × Polymer preparation
- × Quality and volume monitoring



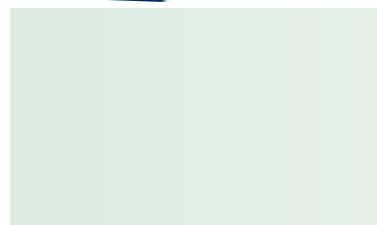
#### Flotation Unit

- × Nano- and microbubble generation
- × Dissolved air flotation
- × Mechanical separation



#### Dewatering Unit

- × Sludge dewatering
- × Solids collection in a geotextile bag
- × Roll-off container for transportation



#### Filtration Unit

- × High-performance pressure filtration
- × Sludge drying
- × Filtrate polishing



#### Oxidation Unit

- × Advanced oxidation process
- × Direct non-thermal plasma treatment
- × Odour, colour, VOCs and COD removal

## Aeration for Fish Farming

Roxia also provides aerators that can be used for fish growing. Roxia Floating Aerator efficiently transfers and disperses oxygen to fish basins. The floating design allows fast and easy installation without costly construction. The aerator's features

keep the operating and maintenance costs low. Roxia Floating Aerator ensures effective water circulation. The under-water intake pipe is optimised according to the water depth which ensures efficient mixing of oxygen-enriched water, vital for fish.



Roxia Floating Aerator is an effective and cost-efficient solution for water aeration.

## Plant Online Monitoring & Control with Roxia Malibu™

Roxia Malibu™ is a new way to combine your process and Industrial Internet of Things (IIoT). Remote access allows you to manage, measure and analyse your processes out of the control room with a computer or any handheld device. Roxia Malibu can predict failures before they occur, allowing you to manage unplanned shutdowns.

Analytics tools and Roxia expert services help optimise your processes and increase productivity. The system can be integrated into any existing process equipment and control system.

- × Plant process monitoring
- × Remote monitoring and support
- × Improved safety
- × Predict equipment failures before they occur
- × Easy access to documentation
- × Remote monitoring, analytics & control



Roxia Floating Aerator is an effective and cost-efficient solution for water aeration.

## Reduced Wastewater Costs

### Success story: Hätälä Fish Producer



#### Customer & application:

Hätälä, Finland's leading fish producer, fish processing wastewater treatment

#### Challenge:

High wastewater costs (€/m<sup>3</sup>)

#### Solution:

Water and sludge treatment with remote monitoring, separation of solids, repurposing solids and fatty sludge

#### Results:

Less waste, reduced load to municipal WWTP, 25 % savings in wastewater costs, preventive maintenance

#### Solids No Longer Block Sewers

Hätälä fish refinery used to channel all their wastewater directly to the municipal wastewater treatment plant. Not only they faced high costs, but they also experienced repeated blockages in the system caused by grease and solids in the sewers.

After careful examination, Roxia and Owaterc experts suggested establishing a pre-treatment unit that would separate solids and grease from the wastewater. Per year, Hätälä handles 110 000–130 000 m<sup>3</sup> of wastewater and 500– 1000 tons of sludge. With these amounts, already separating the solid particles could significantly improve or eliminate the issues.

We created a customised wastewater treatment process. The entire operation is automated and remotely monitored with Roxia Malibu (IIoT platform). This allows Hätälä to save time and focus on their core business. The automation system also monitors pollutant limit values. With only a few clicks, the customer can get instant reports about quality values and treated volume.

Since the installation of the wastewater unit, Hätälä gets two in one: 25 % reduction of wastewater costs and lower level of impurities. Because solids and grease are now removed from the wastewater, the sewers do not get blocked. What is more, solids and fat sludge are used as biogas feedstock. Recycling such valuable components contributes to better use of resources and reducing the environmental impact.

*“ The wastewater treatment process equipment by Owaterc and Roxia Malibu automation have been innovative and the process is running smoothly. We have gained both savings and lower impurities levels.”*

Riku Isohätälä, CEO Hätälä Oy



### Full Automation Through IIoT Platform

The entire wastewater treatment process is fully automated: remotely monitored and controlled with Roxia Malibu, the IIoT platform. Hätälä staff can access the view from any device with an internet connection. Below is the overall view of the wastewater treatment process before the water reaches the sewers.

1. Inlet unit: transfer pumps and screening
2. Dewatering unit
3. Chemical dosing unit
4. Flotation unit: solids and fat separation
5. Sludge tank for solids separated in flotation
6. Discharge to sewer

#### BENEFITS

- ✓ Annual savings -25 % from wastewater costs
- ✓ Grease and solids no longer block the sewers
- ✓ Sludge is used for biogas production



A live view of the wastewater treatment process is only a few clicks away. The entire process is fully monitored and controlled online.

### OUR CUSTOMER: Hätälä Oy

Hätälä is Finland's leading fish producer located in Oulu, Northern Finland. They employ over 200 fish-processing professionals and have revenue of over 100 M€. Hätälä prides itself in responsibly farmed or caught fish in their products.

## Water Treatment for Fish Industry

### Optimise Fish Processing

The powerful partnership between Roxia and Owaterc brings innovative water treatment solutions. Let our wastewater experts help you maintain or meet target emission levels, optimise the process and explore circular economy possibilities.

#### ROXIA

- × Advanced environmental technologies
- × Refined process automation systems
- × Global sales and service network

Roxia is a family-owned global company headquartered in Finland. It specializes in flow control, process automation, environmental and solid/liquid separation technologies. To enhance its products and services, Roxia also offers advanced IIoT solutions and intelligent systems. The area of expertise includes many process industry applications, especially in mining, mineral, chemical, energy and environmental industries.

#### owatec

- × Strong expertise in fish industry wastewaters
- × Specialists in water chemistry
- × Innovative solution design

Owaterc Group Oy is a Nordic center of expertise located in Oulu in Northern Finland. Specializing in solutions for industrial water and sludge treatment places the main focus within the water and waste treatment sector. Owaterc provides high-level knowledge and research-based business with new products and services for domestic and foreign markets.

