



Water solutions for the fish industry

#missionwater

www.nijhuissaurindustries.com

part of

saur
mission
water

(Water, an essential resource)

**Complying with regulations | Reducing costs |
Removing pollution | Reusing water |
Recovering valuable resources**

The water challenges in the fish industry

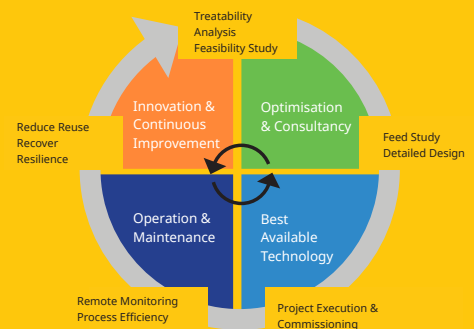
- **Water pollution & waste & complying with regulations** – Contamination from uneaten feed, fish waste, PFAS, and chemicals leads to oxygen depletion, algal blooms, and ecosystem damage. Regulation is in place but is becoming more and more strict.
- **High water consumption & scarcity** – Intensive fish farming strains freshwater resources, affecting local communities and agriculture.
- **Climate change & habitat destruction** – Rising temperatures, ocean acidification, and habitat loss (e.g., mangrove destruction) impact fish health and ecosystems.
- **Footprint** - Due to the expansion of production facilities and efficient of production space, a (waste) water treatment plant might need to be modular, scalable and have a reduced footprint.
- **Water treatment plant operation expertise** - Next to managing the fish processing plant, a water treatment plantsneeds to be operated avoiding production stops and comply with regulations. With an increased pressure on efficient use of manpower and high-level water technology, external O&M support will have a positive effect on keeping the business flowing.



Our approach

To tackle these challenges, we offer an innovative approach that help:

- Reduce water consumption and costs;
- Remove pollutants and contaminations to improve water quality;
- Reuse water wherever possible;
- Recover valuable resources, such as energy and raw materials;
- Minimize the ecological footprint of water usage.



By helping you through all the stages of the project and plant life

cycle, our approach starts with design, feed studies and consultancy of the water treatment plant. Then, based on your needs, we select the best available technology solution/process and build the plant based on our inhouse manufacturing, which seamlessly flows into operation and maintenance with our NSI digital platform and where applicable our local service team.

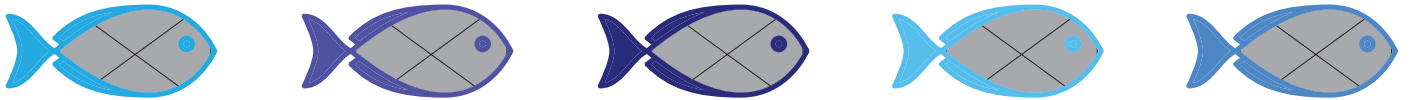
At Nijhuis Saur Industries (NSI), we understand the growing need for water solutions in the fish industry. By treating water locally, we help businesses and communities comply with environmental regulations, reduce costs, and simultaneously recover valuable resources.

We're ready to give water back the value it deserves in the fish industry. We call this **#missionwater**.

Typical water data for the fish industry

Where does fish wastewater come from?

The world demand for animal protein is growing. Total Protein Market Expectation: CAGR of 10.5% from 2021 to 2028. World Population Expectations: 9.74 billion people in 2050



1. A fish processing plant can typically generate between 500 and 1,500 m³ of wastewater per day. Fish farming can generate even higher flows within the so-called RAS-systems.
2. High BOD: Study results indicated that 10-20 ppm is the optimal BOD range for fish culture in farming ponds // 12.5–37.5 kg of BOD filleted fish, per ton of product.
3. High TSS content and high nitrogen content, as result of feed stuff and fish excrements
4. The water treatment process design choice depends on the input and where you need to discharge your water: is that to sewer, river or sea? Flexible and dynamic flows need to be taken into consideration depending on the season.

Water and wastewater streams are coming from:

- Aquaculture farms
- Processing facilities – Cleaning, filleting, and packaging fish
- Hatcheries & breeding facilities
- Feed production & storage
- Cleaning & disinfection – Wastewater from equipment, tanks, and facility cleaning

Typical elements in the wastewater:

- Organic waste
- Omega 3
- Pathogens
- Dissolved protein
- Grease as potential boiler fuel
- Chemicals & pharmaceuticals
- Heavy metals, microplastics and PFAS

Proper treatment and management of fish wastewater are essential to minimize environmental impact and maintain water quality.

(Your challenges and our latest innovative solutions)

The experience of Nijhuis Saur Industries

Drawing on global coverage, Nijhuis Industries has been able to support multiple fish processing clients with its in-house industry knowledge and experience.

We are proud to say that, for example, we have supported several salmon processing facilities in Norway, Peru, Chile and Ecuador. We support the fish processing industry with a complete in-house portfolio of process water treatment, wastewater treatment, resource recovery and sludge management solutions of all varying quantities in wastewater.

Typical setting for a fish processing plant

1. Fish processing plant

2. Surface water treatment

3. Building facility water treatment






4. Wastewater treatment

5. Managing risk and optimize plant








(Your challenges and our latest innovative solutions)

Solutions to reduce cost and remove pollutants

Challenge	Solution	Benefit	Reference Example
Eliminate surcharge costs - Step 1 of 2 Pre-Treatment	Filter systems (NTF, IntenSieve®)	Decrease in TSS, O&G and BOD (COD) before biological treatment and incl. purification agents a higher removal rate	
	Dissolved Air Flotation (DAF)		
	Dissolved Air Flotation (DAF) with coagulation/floccula- tion (PFR), incl purifi- cation agents (NPA)		
Eliminate surcharge costs - Step 2 of 2 Biological treatment	Biological Aerobic Treatment (BIOCTOR)	Produce quality effluents for direct discharge, low in COD, BOD and nutrients	
	Biological Anaerobic Treatment (Econvert®)	Produce quality effluents for direct discharge, low in COD, BOD and nutrients; it is possible to produce biogas	

Your challenges and our latest innovative solutions

Solutions to reduce cost, remove pollutants and reuse water

Challenge	Solution	Benefit	Reference Example
Reduce disposal of sludge to landfill	Screw Press (NSP)	Removes free and bound water from sludge, reduces transportation/disposal costs	
Convert WWTP effluent into river discharge, irrigation water or drinking water quality for internal purposes	Sand Filter (HR i-CSF), Carbon Filter (CarboPure)	Reduce discharge cost, reduced water footprint, reduced environmental footprint	
	Membrane solutions (NMS-UF, NMS-NF, NMS-RO)		
PFAS and micropollutants removal	PFAS FoamFrac, PFAS Destruct, Bio Activated Carbon (BODAC®), Ozone (MicroOxi)	Meet upcoming legislation and reduce potential discharge cost	
Emergencies and avoid production stops	Mobile Water Solutions (MWS)	Continuous treated water supply and seamless wastewater treatments, available 24/7 and 365 days a year.	
Groundwater treatment / well water for facilities	Pre-treatment, Membrane solution, Sand Filter (HR i-CSF), Carbon Filter (CarboPure)	Reduce discharge cost, reduced water footprint, reduced environmental footprint	

(References)

Salmon processing
Flow: 2400 m³/d
Solution: Filtration, Flocculation, Flotation, Sludge Management



Salmon processing
Flow: 300-1800 m³/d
Solution: Filtration, Flocculation, Flotation, Sludge Management



Tuna processing
Flow: 120 m³/d
Solution: Filtration, Flocculation, Flotation, Biological treatment, Sludge Management



Fish processing
Flow: 2 x 150 m³/h
Solution: Flotation



#missionwater

www.nijhuissaurindustries.com

