WATER & ICE process solution

Design and turnkey production of RAS fish farms

www.waterandiceprocesssolution.com

Design and turnkey construction of RAS fish farms

Fully automated agricultural business with a payback period from 1 year

Reliable equipment from the manufacturer produced in accordance with German technology

10 Years of experience

120+ Companies have become our customers

10-20 Farm per year we design, build or reconstruct

Fish farming business viability

The rate of growth in fish consumption in the world twice exceeds the rate of the world's population increase

At present, more than **60%** of the fish on the market are aquaculture products and only **40%** are the fish caught in the wild

From **50** to **90%** of major valuable fish species in India and the Asia countries are grown at farms

Consumption of fish is growing faster than the consumption of meat of all terrestrial animals in general

In the middle fish segment (**5,3-13,5** USD/kg) there are many low quality products and a shortage of fresh, healthy fish

Around **50%** of fish is imported to Others (and around **80%** of red salmon)

The capacity of existing fish farms is insufficient to fully cover market needs

30-50 fish farms are launched in Russia every year, **50%** of them are farms using RAS technology

It is easy to grow fish in RAS

Even if you have not been engaged in agricultural production before

Equipment is fully **automated**

No frequent purchases of **feed and stocking material** are needed. Reliable suppliers, high quality guarantee

Simple in operation by hired employees, does not require high qualification

Minimum technical **maintenance**, possible to do it on your own

Invest into a stable and profitable asset

3-5 fold return on investment in 10 years

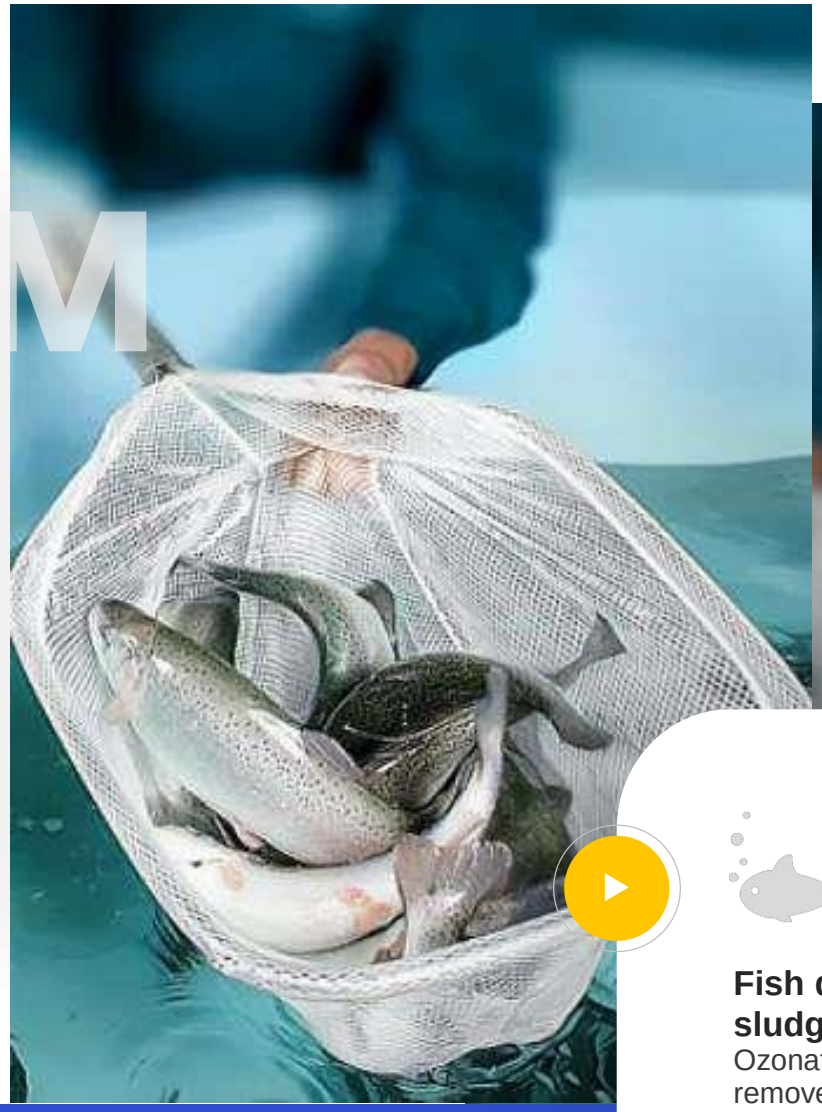
Average business profitability 40-50%

Equipment payback period from 12 to 24 months

Return on investment from 2 to 5 years

Supply customers with ecological, healthy and premium quality fish

Премиум



100% healthy fish without parasites

Water is treated mechanically and biologically 24 hours a day, disinfected with ultraviolet and ozone

Natural feed without antibiotics

High quality extruded feed with optimal composition and for each particular type of fish

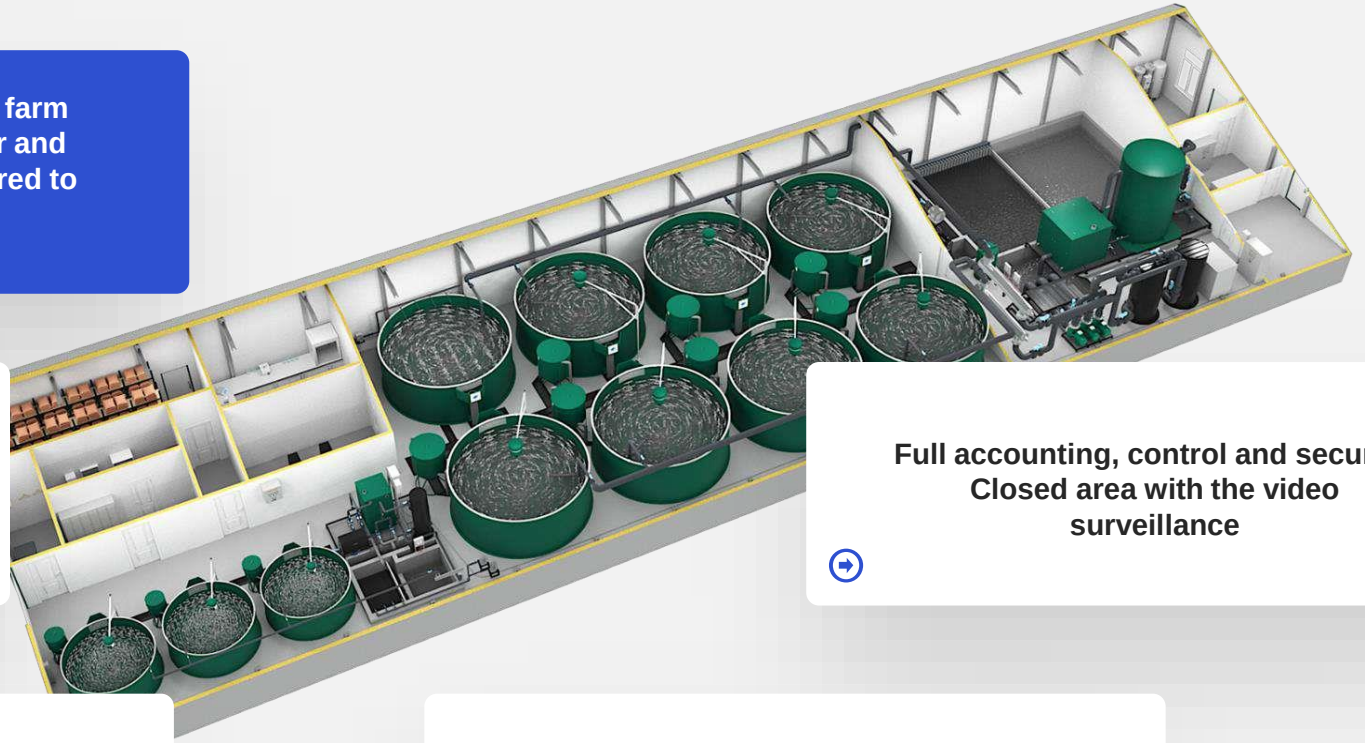
Fish does not smell like sludge

Ozonation + purging completely remove any fish smell

The best fish muscle tone → Continuous water recirculation in fish holding tanks with speed control

RAS is a compact automated fish farm with minimum human participation

Fish grows 3 times faster than, farm consumes 100 times less water and occupies 1000 less area compared to growing fish in ponds



The farm is automated, it work around the clock and requires minimum staff engagement in the process

Full accounting, control and security. Closed area with the video surveillance

Strong sales all year round, there are no seasonal fluctuations

Organic and healthy premium quality fish, without antibiotics, feed with natural granular feeds

Reliable equipment from the manufacturer produced in accordance with German technology

Use of imported components

We hold to a high quality standard and use German, Italian components to assemble our technological line

In-house production of high quality units

Equipment is assembled at the manufacturing facility with the use of professional instruments

Complete set of equipment, major units are duplicated

We provide for all necessary units as part of the system. The equipment is protected against failures and accidents, major units are duplicated

Efficient use of investments

- We will design your farm efficiently (maximum compactness, effective production program)
- We will carefully think over technical solutions, bypassing the pitfalls. You will save time and money by avoiding mistakes and redesigning
- The equipment has been tested at more than 50 farms, it does not require any improvements and constant maintenance
- We will produce equipment at manufacturer’s prices without excess payments

We will launch your farm from the first sketches to growout fish

- Competent and detailed consultation
- Site and building evaluation
- Providing technological process plan and detailed calculations
- Providing a downright business plan
- Full-cycle engineering of the farm

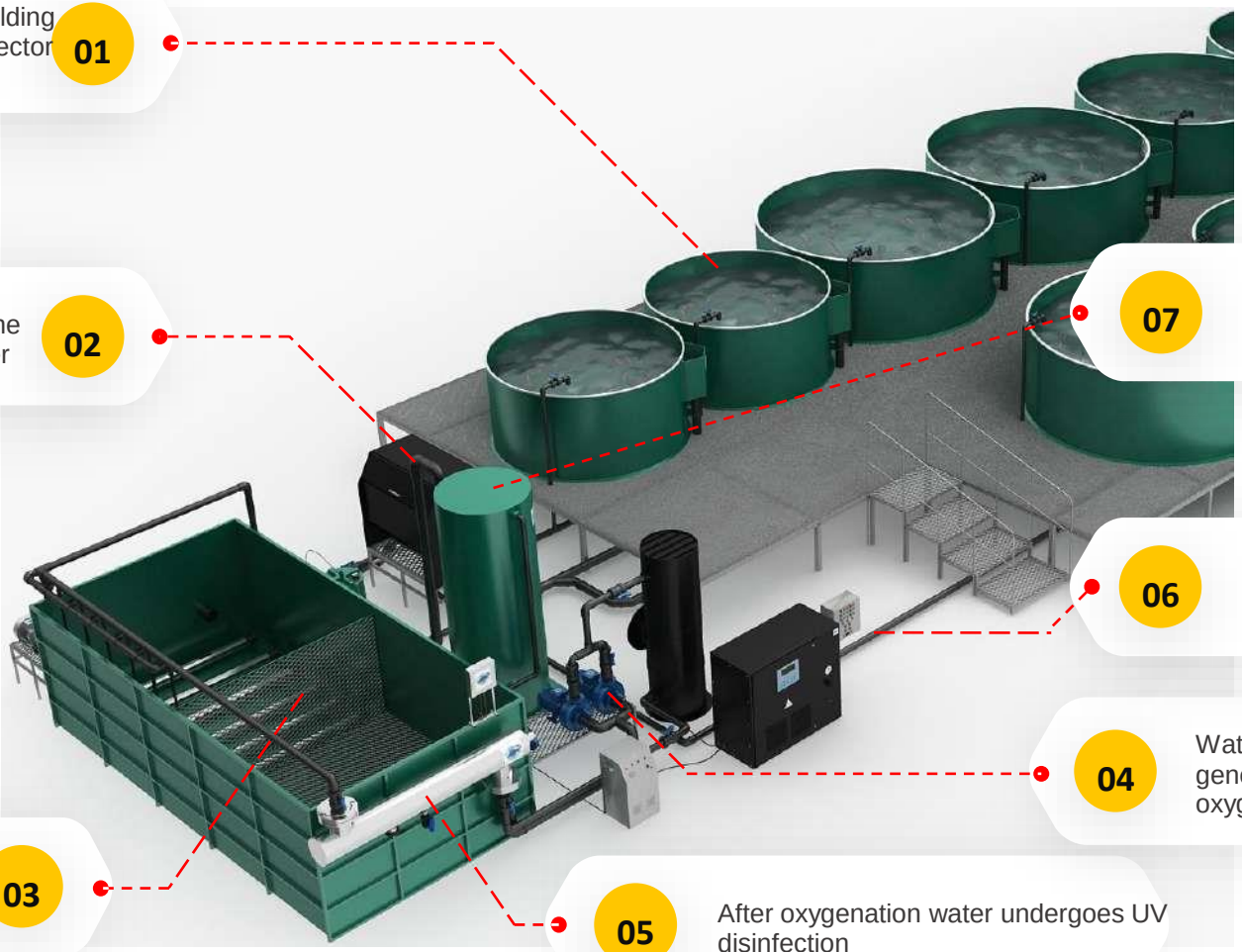
- Supervision of the construction works

We will launch your farm from the first sketches to growout fish

- RAS equipment manufacturing
- Delivery, installation and launching
- Stocking and training
- Servicing and maintenance

- Modernization and expansion

The principle of water & Ice technological line operation



01 Non-treated water from fish holding tanks is drained into the collector

02 Through the pipes water enters the drum microfilter

03 Water treated from suspended solids is fed to the biofilter

04 Water is pumped and supplied to the oxygen generator. Oxygen is supplied from the oxygen concentrator

05 After oxygenation water undergoes UV disinfection

06 Treated water is returned to the tanks through water supply pipelines

07 The ozonation system operates as a separate circuit

Fish species that can be farmed in RAS

01

Sturgeons

02

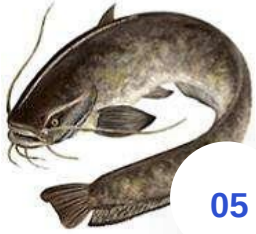
Tilapia

03

Whitefish

04

Trout



05

African catfish

06

Vannamei
and Rosenbergii prawn

07

Red claw crayfish

08

Fry

Custom solutions for all major fish species

Maximum capacity and reliability, reduced investment and prime cost

Universal facilities

Capacity from **2,5** to **10** tons of growout fish per year

RAS facilities for farming growout sturgeon

Capacity from **2,5** to **1000** tons of growout fish per year

RAS facilities for farming sturgeon for caviar

Capacity from **0,5** to **5** tons of sturgeon caviar per year

Custom solutions for all major fish species

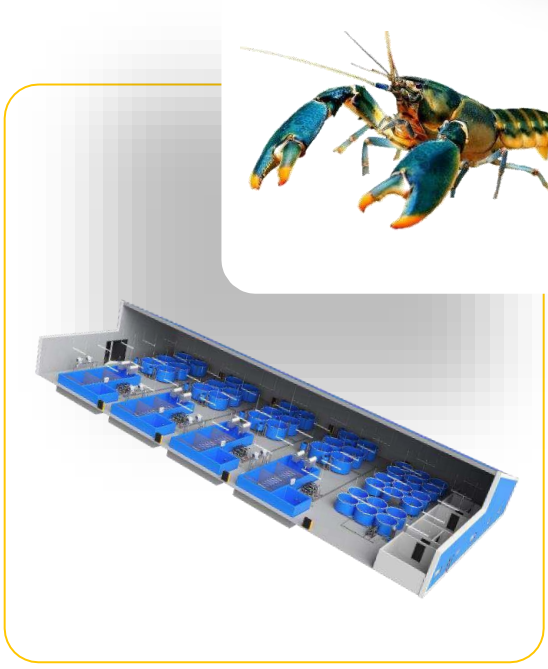
Maximum capacity and reliability, reduced investment and prime cost

RAS facilities for farming trout

Capacity from **2,5** to **5000** tons of growout fish per year

RAS facilities for farming African catfish

Capacity from **5** to **5000** tons of growout fish per year

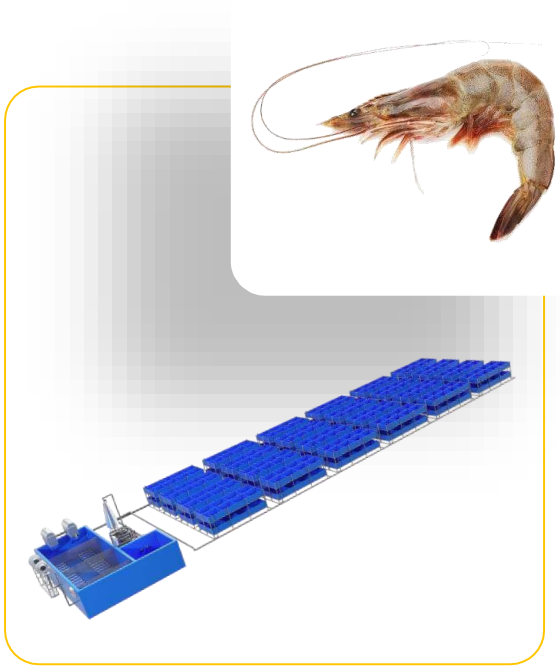


RAS facilities for farming Australian crayfish

Capacity from **800** kg to **20** tons per year

Custom solutions for all major fish species

Maximum capacity and reliability, reduced investment and prime cost



RAS facilities for farming prawn

Capacity from **800** kg to **20** tons per year

Incubation and fry blocks

Capacity from **1000** to **10 mln** pieces of fry per year

Fish holding

Whitefish, Atlantic salmon, pike perch, tilapia

Manufacturing of separate equipment units

Biofilters

Range of application

- Biological water treatment by means of mineralization of organic matter by bacteria

Ph monitoring and dosing systems

Range of application

- Maintaining stable acidity (pH) of water in RAS

Drum microfilters

Range of application

- Mechanical treatment of water in RAS
- Open water bodies (rivers, ponds) treatment
- Water treatment at industrial facilities

Swirl filters

Range of application

- Preliminary mechanical water treatment from coarse suspended solids at fish farming facilities

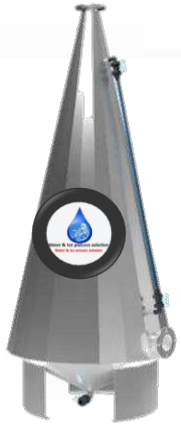
Manufacturing of separate equipment units

Ozonation systems

Range of application

Water disinfection:

- At fish farms
- At communal sewage treatment plants
- At industrial facilities



Oxygenators

Range of application

- Oxygenation of water at RAS farms
- Oxygenation of pond water
- Oxygenation of water in aquariums and oceanariums

Oxygen concentrators

Range of application

- Production of **90-95%** pure technical oxygen at fish farms

Control panels

Range of application

- Monitoring and control of RAS equipment

Manufacturing of separate equipment units

Incubation equipment

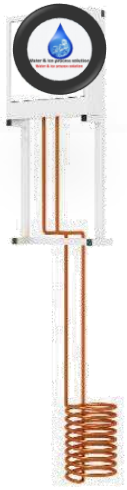
Range of application

- Farming stocking material for further ongrowing

Degassers

Range of application

- Fish farm water degassing



Heat exchangers

Range of application

- Fish farm water heating

Fish holding tanks

Range of application

- Holding fish at farms

Manufacturing of separate equipment units

Live feed blocks

Range of application

- Live feed (artemia) farming for feeding larvae at early stages

Bead filter

Range of application

- Complex mechanical and biological water treatment at fish farms and ponds

Ozone retention tank

Range of application

- Treatment and disinfection of waste water, as well as surface water drainage from various contaminants

Thin-layer settling tanks

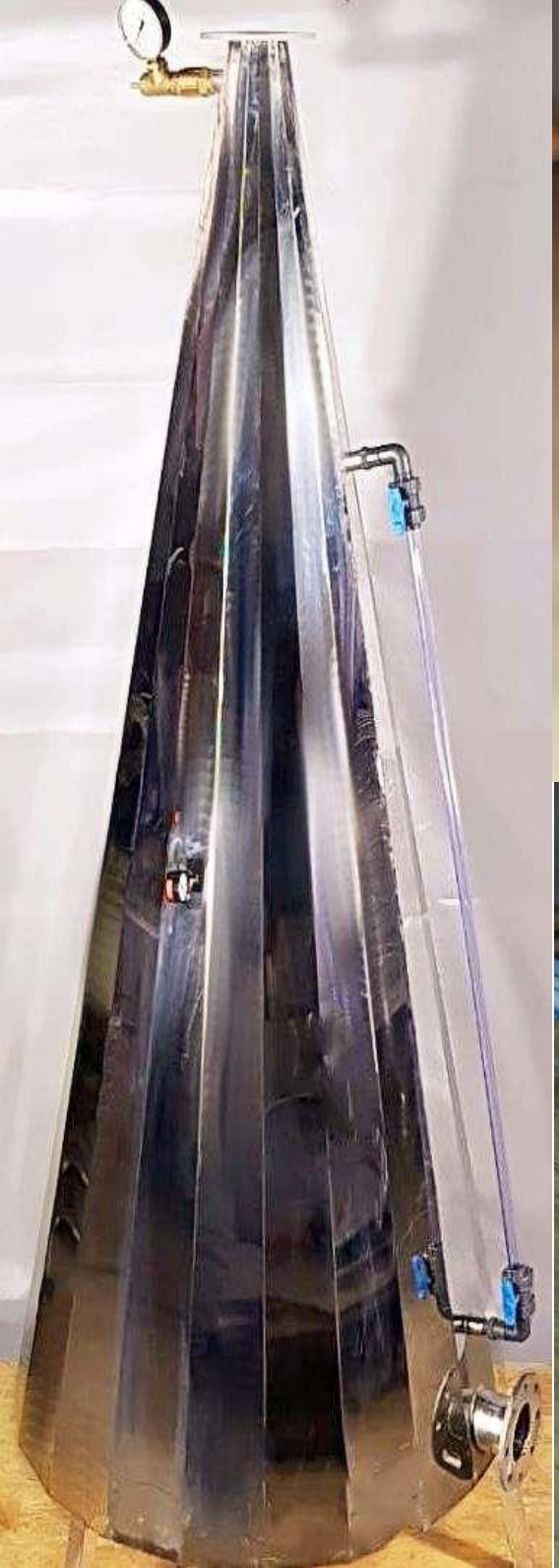
Range of application

- Preliminary (coarse) mechanical water treatment from coarse suspended solids at fish farms

Our production facility

Our production facility

Produced equipment units



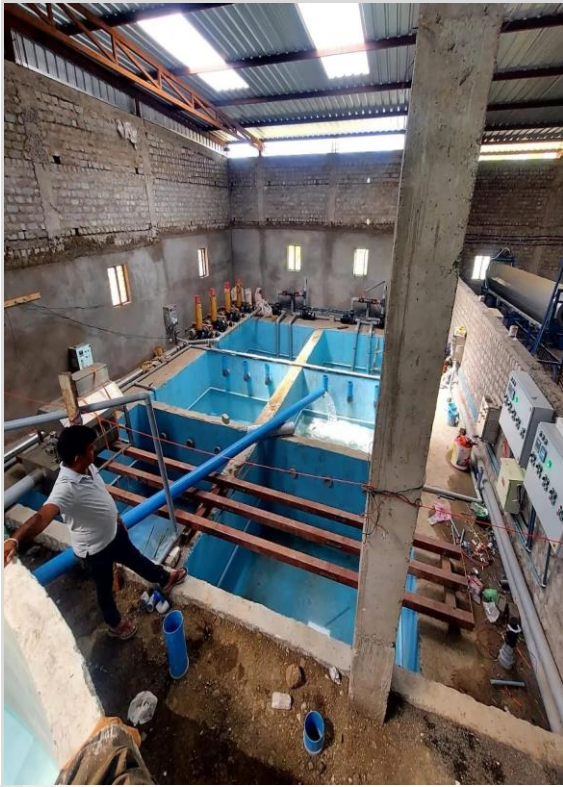
Produced equipment units

Produced equipment units

Water & Ice process solution

Water & Ice process solution

Produced equipment units



Implemented projects

Trout incubation and fry ongrowing

Republic of Karelia, Lakhdenpokhya

BEFORE

AFTER

Capacity

500 000 of pieces of fry

Area

200 m2

Implemented projects

RAS facility for growing rainbow trout

Kursk region, Kursk

BEFORE

AFTER

Capacity

Up to **136** tons of growout fish per year

Implemented projects

Flow-through system for farming sturgeons

Moscow region, Mansurovo

BEFORE

AFTER

Capacity

20 000 pieces of sturgeon fry per year

Includes:

- Water treatment system
- Fish holding tanks

Implemented projects

Sturgeon RAS farm

Azerbaijan,
Baku

BEFORE

AFTER

Capacity

100 Tons of growout fish per year and **2** tons of sturgeon caviar

Area 8000 m2

Full cycle

“from fertilized eggs to caviar”

Implemented projects

RAS farm for growing African catfish

Republic of Bashkortostan, Ufa

BEFORE

AFTER

Capacity

Up to 32 000 kg per year

Area 178 m2

Farming from 10 gr fry to growout weight of 1 500 – 2 000 gr.

We have great experience in designing and manufacturing of flow-through systems as well as recirculating systems

Recirculating system for farming trout

BEFORE

AFTER

Ulyanovsk region, Ulyanovsk

Capacity

Up to 40 tons per year from fry to growout weight

Includes

- Water treatment system
- Fish holding tanks

Implemented projects

RAS facility for farming sturgeon

Krasnodar region, Temryuk

BEFORE

AFTER

Capacity

Up to 5 of growout fish per year

Area 200 m2

Implemented projects

RAS facility for growing African catfish

Yaroslavl region, Yaroslavl

BEFORE

AFTER

Capacity

Up to 16 000 kg of growout fish per year

Area 90 m2

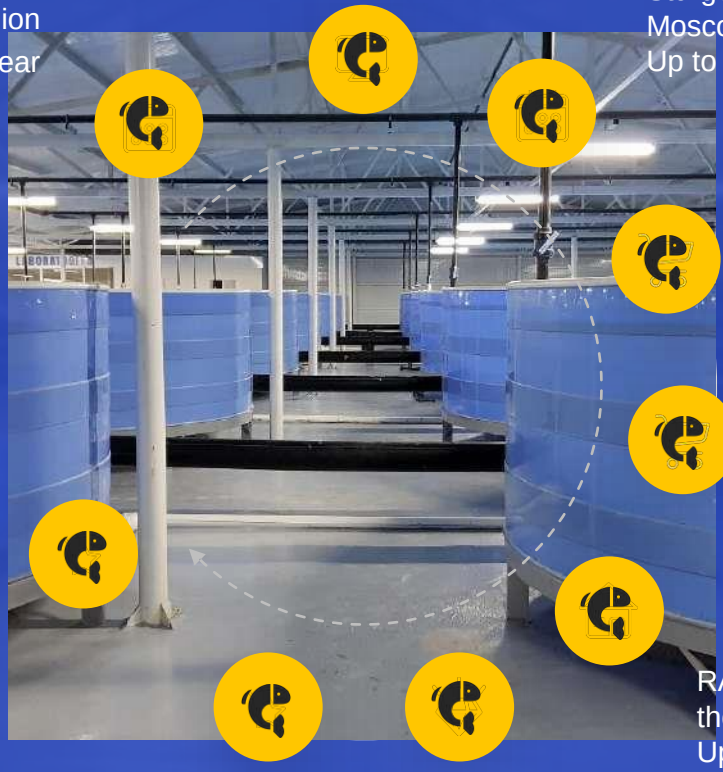
Farming from 10 gr fry to growout weight of 1,5 – 3 kg

Other implemented projects

Sturgen RAS farm modernization
Georgia, Batumi
Up to 50 tons of growout fish per year

Sturgeon RAS farm,
Leningrad region
Up to 5 tons of growout fish per year

Sturgeon RAS farm,
Moscow region
Up to 2,5 tons of growout fish per year



Incubation and fry department,
Republic of Karelia, Kostomuksha
Up to 200 000 pieces of trout fry per year

Mini-RAS for farming African catfish,
Bulgaria
Up to 5 tons of growout fish per year

RAS farm for growing trout,
the Ivanovo region
Up to 6 tons of growout fish per year

RAS facility for growing sturgeon,
the Kostroma region
Up to 15 tons of growout fish per year

Mini-RAS farm for growing African catfish, Novosibirsk region
Up to 4 tons of growout fish per year

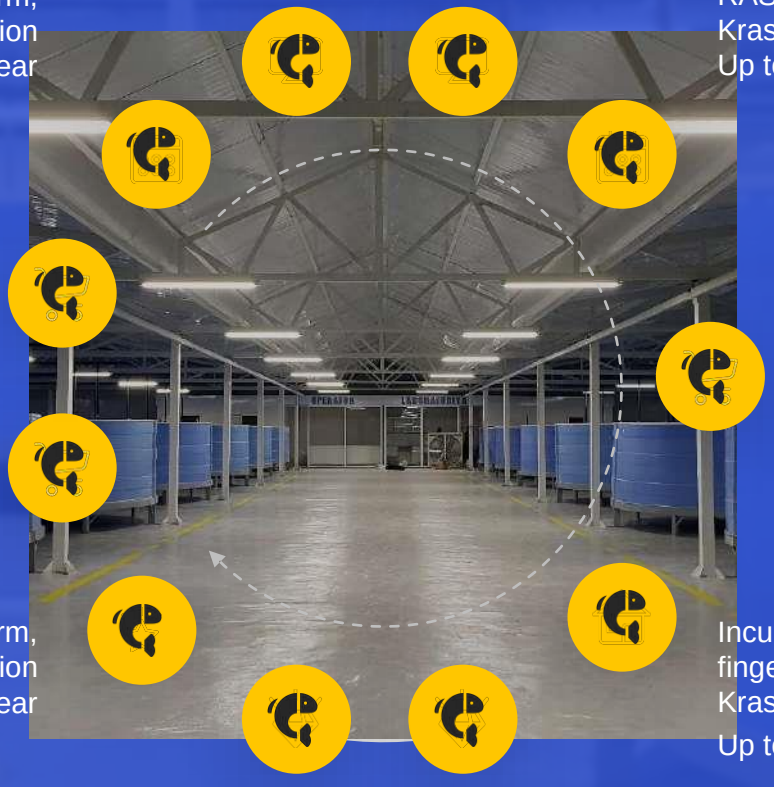
African catfish RAS farm,
the Ivanovo region
Up to 30 tons of growout fish per year

Mini-RAS for growing sturgeons,
the Tver region
Up to 1,5 tons of growout fish per year

Sturgeon RAS farm,
the Smolensk region
Up to 20 tons per year (growing juvenile fish)

African catfish RAS farm,
the Ryazan region
Up to 20 tons of growout fish per year

RAS facility for growing sturgeons,
Krasnodar region
Up to 5 tons of growout fish per year



RAS for growing trout,
the Tver region
Up to 800 kg of growout fish per year

RAS farm for African catfish,
the Sverdlovsk region
Up to 20 tons of growout fish per year

RAS farm for growing African catfish,
The Samara region
Up to 20 tons of growout fish per year

Sturgeon RAS farm,
the Kostroma region
Up to 15 tons of growout fish per year

Incubation and fry department for growing sturgeon fingerlings,
Krasnoyarsk region
Up to 300 000 pieces of fry (10 gr.) per year

Mini-RAS farm for sturgeons,
the Kaluga region
Up to 1 ton of growout fish per year

Incubation and fry department for growing salmons,
Kabardino-Balkaria
Up to 150 000 pieces of fry per year

At the moment the following projects are at the stage of implementation

Leningrad region
Incubation and larval blocks for 250 000 pieces of trout fry with the weigh of 5 gr.

Republic of Karelia
Modernization of fry and broodstock departments

Republic of Karelia
AS farm for growing trout
Up to 4 000 tons of fish per year

Stavropol region
RAS facility for farming trout
Up to 100 tons of growout fish
(from fertilized eggs)

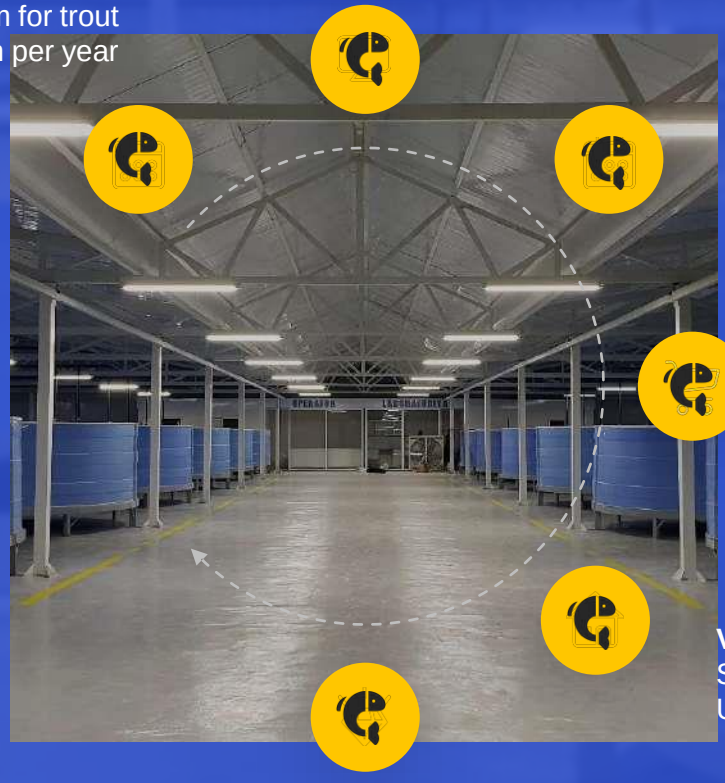
epublic of Belarus
AS for growing giant freshwater Rosenbergii prawn
full cycle)
p to 3 200 kg per year

Murmansk region
Incubation and fry departments with the capacity of 200 000 pc. of 10-15 gr. trout fry and 150 000 pc. of 10-15 gr. sturgeon fry per year

At the moment the following projects are at the stage of implementation

Samara region
RAS facility for growing trout
Up to 15 tons of growout fish per year

Samara region
RAS farm for trout
Up to 5 tons of growout fish per year



Rostov region
RAS farm for sturgeon
Up to 2,5 tons of growout fish per year

Republic of Kazakhstan
RAS farm for sturgeon and African catfish

Voronezh region
Sturgeon RAS farm
Up to 5 tons of growout fish per year

Moscow region
RAS farm for growing sturgeon
Up to 5 tons of growout fish per year

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