



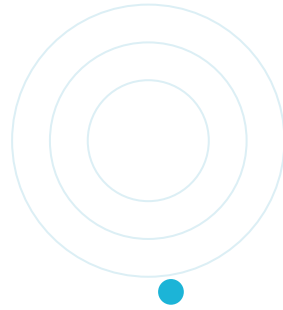
MARINE BLUE / INDOOR AQUACULTURE

Indoor RAS. Engineered for reliable production.

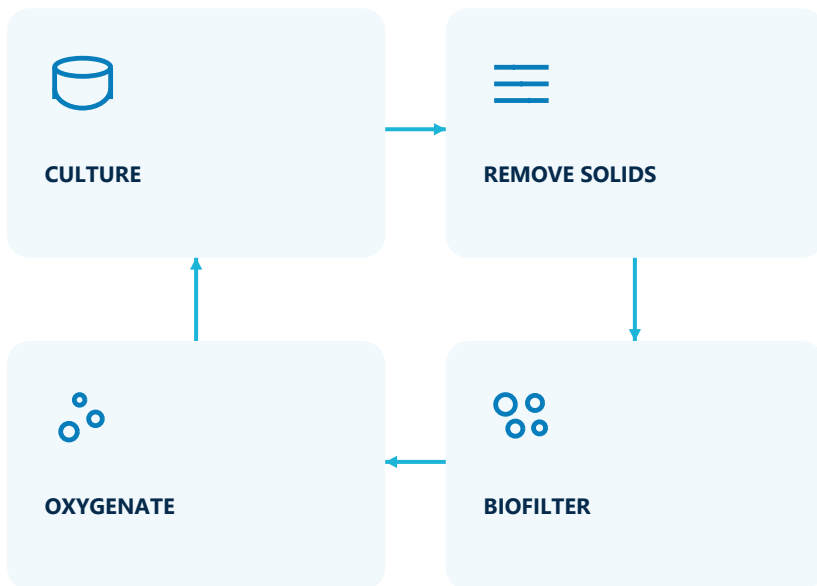
Integrated water treatment, oxygenation and control - from concept to production.

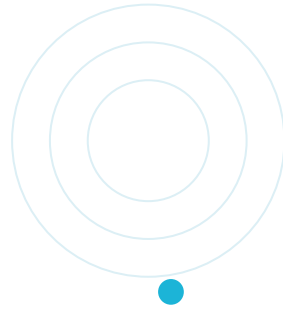
What is indoor RAS?

A production system that treats and reuses water in a managed loop.



In the RAS approach shown here, fish or shrimp grow in indoor tanks. Water passes through solids removal and a biofilter, regains oxygen, and returns. Make-up water replaces losses and supports water-quality control.





How RAS works

Each stage protects the next; design is tailored to species and biomass.



01 Culture tanks

Fish or shrimp grow in monitored indoor tanks.



02 Mechanical filtration

Solids and uneaten feed are separated early.



03 Biological filtration

Biofilter microbes convert ammonia to nitrite, then nitrate.



04 Gas management

Carbon dioxide is removed; oxygen is restored.



05 Disinfection when needed

UV or ozone is selected for the process goal.

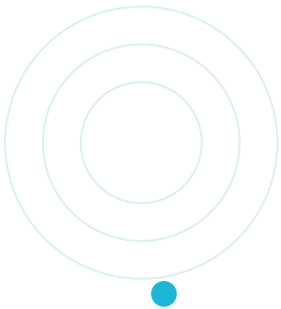


06 Return + monitoring

Conditioned water returns; make-up water is added.

Why choose RAS?

The best choice depends on species, site, water, energy and investment.

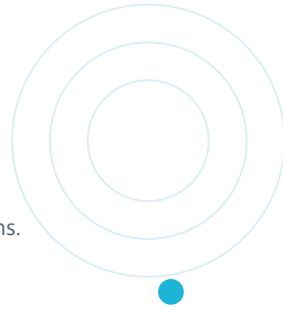


DECISION FACTOR	INDOOR RAS	OPEN POND
Water	Typically high reuse	Exchange varies by pond
Conditions	Active control of key parameters	More weather exposure
Biosecurity	Controlled water entry and access	More environmental exposure
Waste	Solids can be collected	Solids handling varies by design
Space	Compact site potential	Area depends on pond design
Resources	Higher equipment, power and skill	Often simpler infrastructure

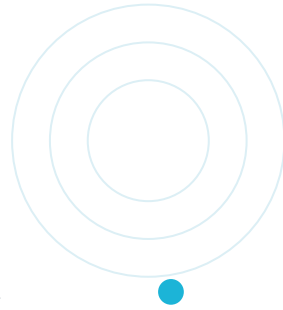
Comparison describes typical design tendencies, not guaranteed outcomes. Pond performance and water exchange vary widely.

More control by design

Potential advantages over open ponds, subject to species and site conditions.



Trade-off: indoor RAS requires higher capital, reliable power and skilled operation.



Designed to use resources wisely

The benefit comes from the complete operating system, not the tank alone.



Reuse water

Treatment returns much of the process water to culture tanks.



Capture solids

Mechanical separation makes waste streams easier to manage.



Compact site

Indoor layouts can concentrate production when well designed.



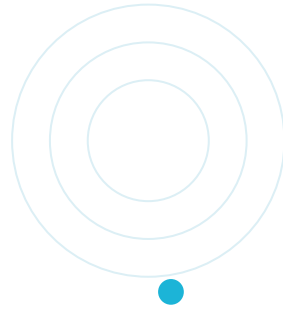
Control inputs

Monitoring helps manage oxygen, feed, water quality and discharge.

The energy test: pumps, oxygenation and temperature control need reliable power. Efficiency and backup plans are essential.

Indoor RAS, engineered end to end

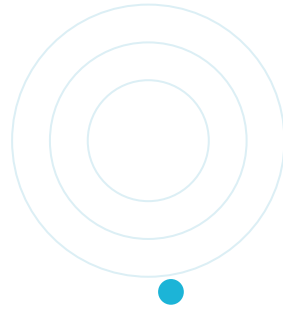
From concept to commissioning, with one connected technical pathway.



- | | | |
|----|--------------------|--|
| 01 | Feasibility | Species, output, site and utilities |
| 02 | Engineering | Hydraulics, filtration and oxygen |
| 03 | Integration | Equipment, piping and controls |
| 04 | Delivery | Supply, installation and commissioning |
| 05 | Support | Training and technical follow-through |

Designed around your production goal

The right equipment follows the biological and operating requirement.



Species

Biology and life stage

Biomass

Stocking and growth target

Water

Source quality and make-up

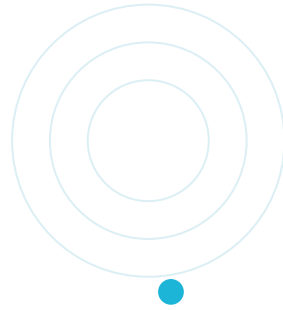
Site

Space, climate and utilities



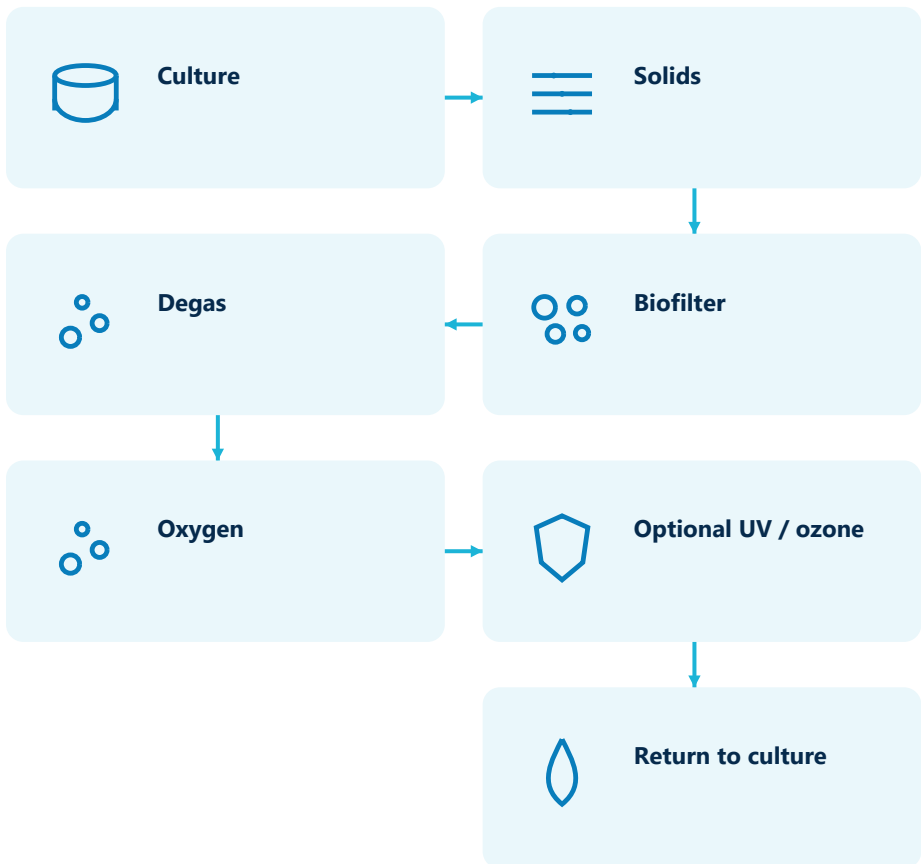
ENGINEERED OUTPUTS

Tank layout
Flow & hydraulics
Solids removal
Biofiltration
Oxygen & degassing
Controls & backup



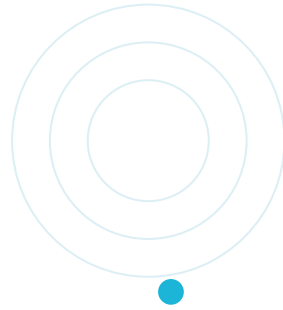
Water treatment works as one system

Treatment stages are selected and sized for the production load.



A connected equipment portfolio

Mechanical, biological and gas-management equipment serve one process.



Culture & containment

Circular tanks; drains and piping



Solids & filtration

Drum filters; biofilters; protein skimmers as specified



Oxygen & gas

Oxygen cones; PSA generators; diffusers; degassing



Controls & safety

Panels; sensors; piping; UV or ozone as specified

A production space that works as a system



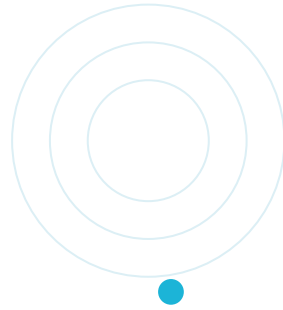
Indoor aquaculture coordinates water quality, utilities, biosecurity, circulation, observation and service access. The design must support both the animals and the team operating the facility.

BIOLOGY

WATER

WORKFLOW

SUPPORT



From concept to production

A project pathway built for practical delivery and handover.

01

Assess

Species, site, capacity and feasibility

02

Design

System concept and engineering

03

Supply

Equipment and material coordination

04

Install

Construction and integration

05

Commission

Performance checks and training

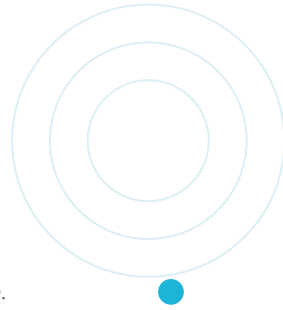
06

Support

Operation and improvement

Choose the right production approach

Marine Blue offers distinct approaches beyond the RAS process shown here.



Biofloc

A separate microbial-floc method requiring aeration and solids control.



Circular tanks

Containment hardware; tank shape alone does not define the process.

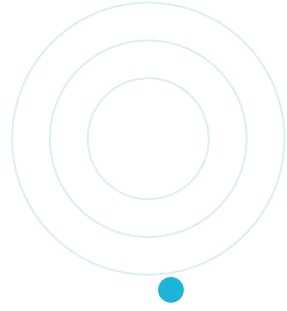


Aquaponics

Fish-and-plant integration with its own nutrient-management design.

A RAS-Biofloc hybrid needs a purpose-built solids, aeration and nitrogen strategy.

Built for every life stage



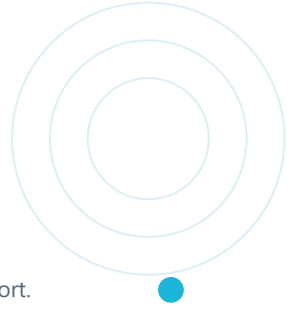
Hatchery & nursery

Broodstock, larval and nursery spaces organized for water quality and handling.



Pond engineering

Aeration, sludge and water management, access and site workflow.



Built around real operating contexts

Different settings need different balances of biology, engineering and support.



Commercial producers

Hatcheries & nurseries

Government & fisheries

Research institutions

Startups & investors

Biofloc producers

Aquaponics enterprises

Export-oriented producers

TECHNICAL BASIS

FAO, Culture in Recirculating Systems; Southern Regional Aquaculture Center, Fish Farming in Recirculating Aquaculture Systems and Biofloc Production Systems for Aquaculture.



MARINE BLUE AQUACULTURE SOLUTIONS PVT. LTD.

Let us engineer your next production system.

Share your species, target capacity, site and project stage to begin a technical discussion.

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