

THE GLOBAL FUTURE OF AQUACULTURE

SUSTAINABLE - ENVIRONMENTAL - FLEXIBLE - ONSHORE RAS SOLUTIONS



Alpha Aqua™

THE ALPHA SYSTEM

Faster construction, no fixed concrete structures and better ROI

Most RAS aquaculture systems are pieced together from several sub-suppliers and added into existing or purpose-built buildings for operation, which entails the risk of operational and construction grey zones that can affect performance, operational safety and bio-security of the systems.

By going with one complete ALPHA design, these disadvantages can be mitigated from the beginning, allowing more efficient offers, safer production units and a lower total cost.

As an intrinsic part of our systems, we include by design the water inlet treatment and the sludge treatment facilities. We aim to ensure the best quality of the water and a reduced and better use of the sludge, turning a byproduct into a secondary product.

Working together with partners on the design of the building, keeping the final operator, fish welfare, product design and delivering in mind, all the needed subsystems to a full-scale turnkey production unit can be offered.

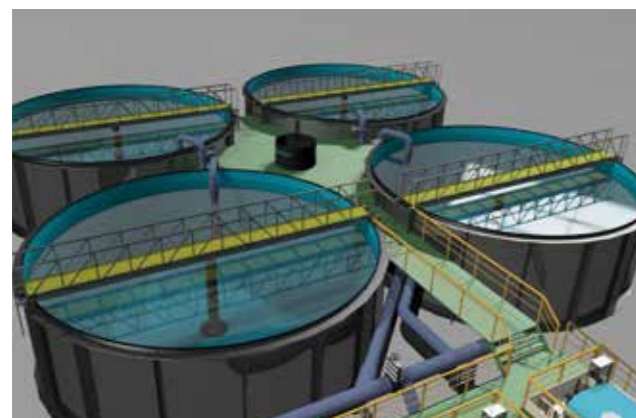


Safe by design

Designed with spare capacity and redundancy in order to safeguard your biomass in case of mechanical failures or maintenance shut-downs.



Tanks, water treatment, accessory systems... all mounted over a flat concrete structure!



"WE HELP YOU FARM ANY SPECIES OF FISH ANYWHERE IN THE WORLD..."



UNIQUE FLAT SURFACE DESIGN

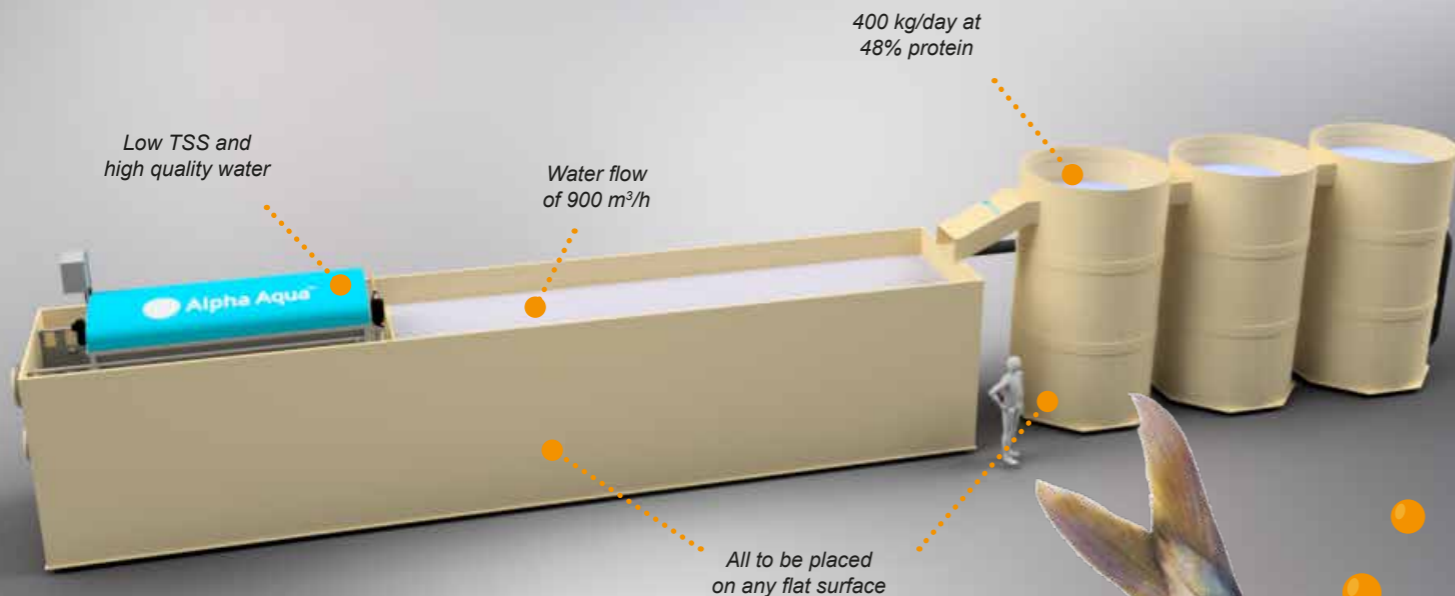
...enables the ALPHA system to be installed on a standard flat concrete floor

Complete system built in food grade PP, providing very high persistence to the salty environments, easing cleaning procedures with smooth surfaces and offering high biosecurity and a long-lasting system.

By mounting the ALPHA RAS as free standing on a standard industrial concrete floor, our customers get the market's most innovative and dynamic production platform.

Built and tested at our factory – tested and approved before installation on customer premises.

Expand, update, upgrade, change part of your tanks, conduct maintenance shutdown, all possible without interrupting production.

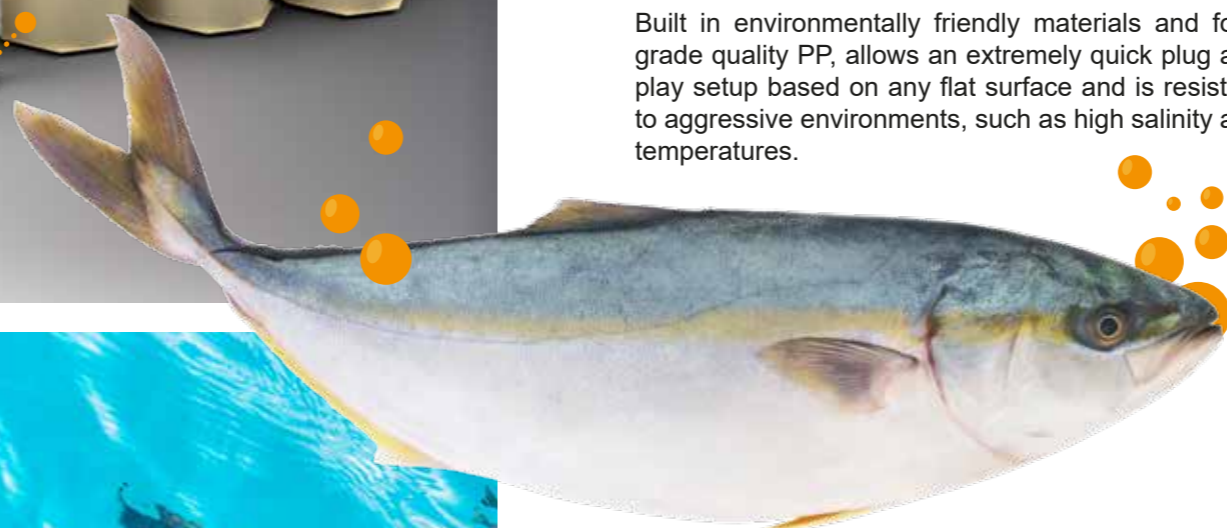
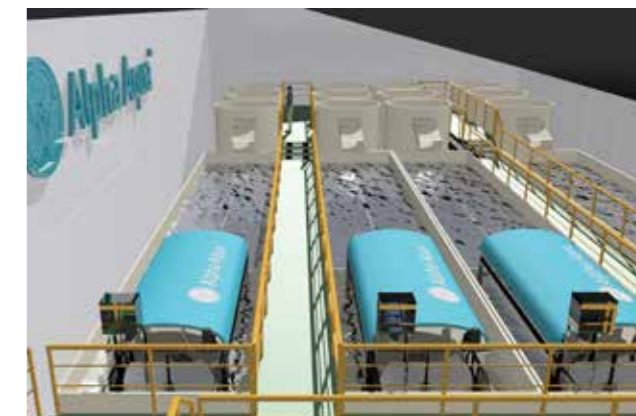


ALPHA LINE – WATER TREATMENT UNIT

Compact, efficient, reliable and mounted directly over any flat surface

With a unique and compact design, the ALPHA water treatment line provides the best water quality: low TSS, high nitrification and excellent gas balance for the fish.

Built in environmentally friendly materials and food grade quality PP, allows an extremely quick plug and play setup based on any flat surface and is resistant to aggressive environments, such as high salinity and temperatures.



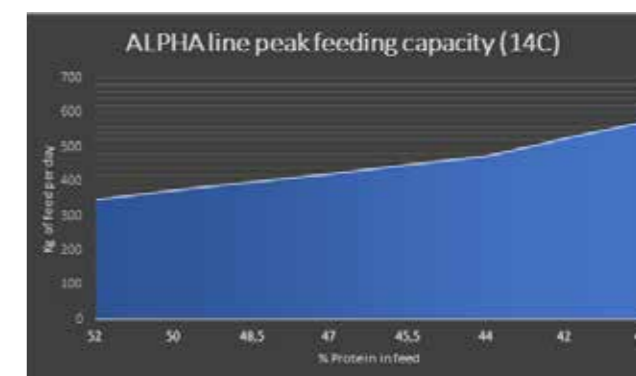
“PROVIDING OPTIMAL WATER CONDITIONS AT ALL POINTS OF PRODUCTION...”

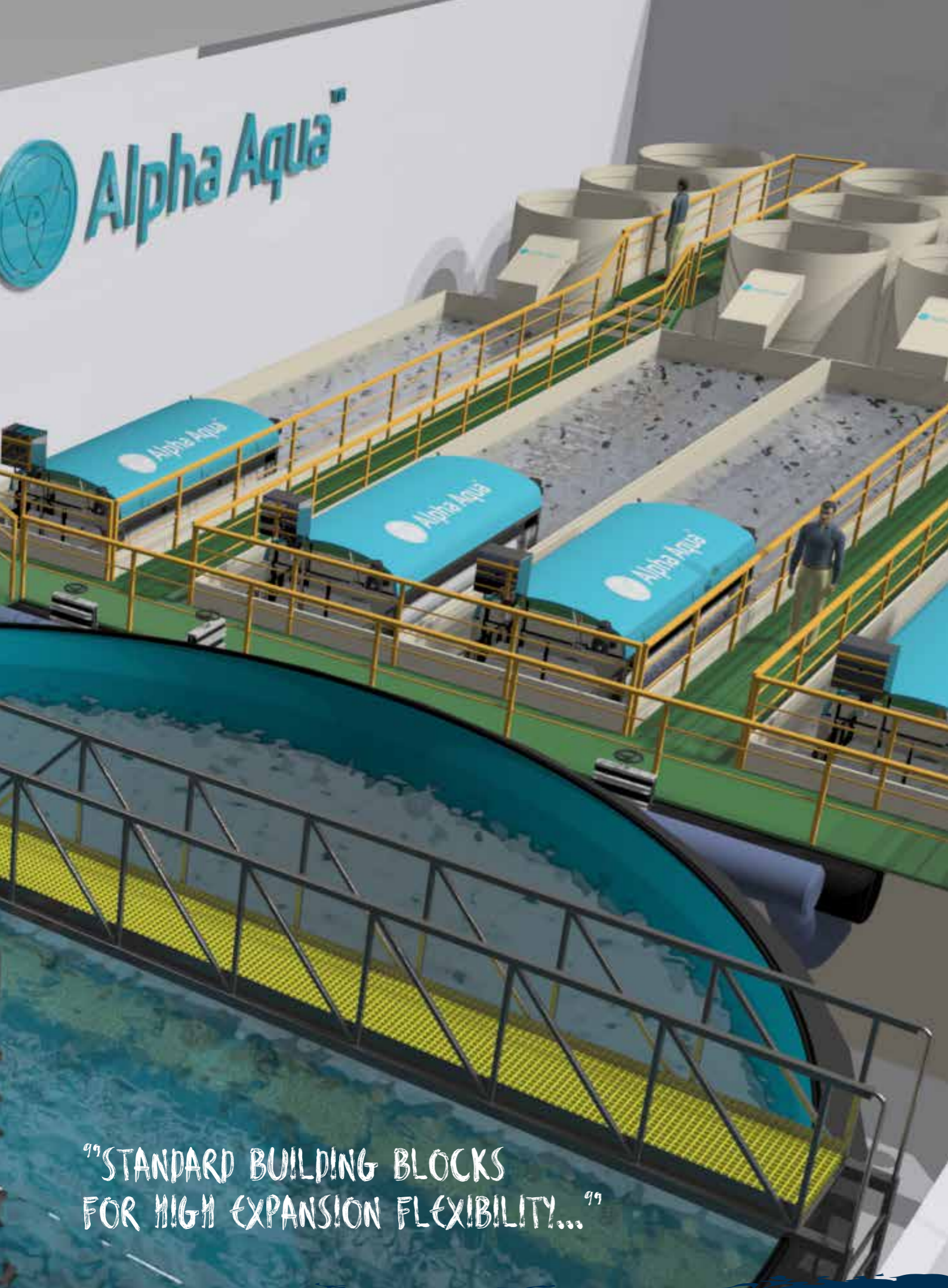
Options upon demand:

- Oxygenation support system
- Heating/chilling system
- Heat recovery system
- Sludge treatment system
- Backup generator

ALPHA Line Water Treatment Technical Specifications	
ALPHA Line footprint	86 m ²
ALPHA Line dimensions (LxWxH)	26x3,3x4,5 m
ALPHA Line water volume	107 m ³
Flow per core unit	900 m ³ /h (distributed on 3 Grundfos lift pumps, frequency regulated)
Core Unit weight (with water)	56.5 Tn (1.29 Tn/m ²)
Operational temperatures (min-max)	12.5° C to 35° C
Drum Filter screen size	40 microns (NP filter)
Total available degassing surface	65 m ²
Biofilter towers	3 per water treatment line (customizable)
Peak feeding capacity	400 kg/day at 48% protein
Compressor Blower	3 kW and 4 kW Kaeser blowers
Power consumption	55 kWh
Electrical connection	3 x 400V 50Hz
ALPHA Orbit Control System	Included (Siemens PLC based)

ALPHA Line is adaptable to existing systems or to be the key component of any new developing RAS project.





TOGETHER WE CAN MAKE YOUR BUSINESS GROW

Why is a good services and aftersales provider, like ALPHA, so important for a well-functioning RAS?

Successfully operating a fish farm depends on the reliability of many small processes. A system running continuously all year round demands high standards of equipment, efficient daily operation and carefully planned shutdowns. If the output of the process must match the input in form of investments, time and energy it is of utmost importance to lay down a strategy regarding water quality, maintenance and implementation of daily procedures.

We are fully aware of the challenges the staff at an aquacultural system face in daily operation and we strongly believe that we can add value to the different aspects of the production.

Our experienced team at Alpha Aqua A/S has a long time ago discovered the synergy of a continuous dialogue between supplier and client in order to improve production, maintenance and an overall life-cycle of the system.



We offer a wide range of services to optimize and maintain production, such as:

TECHNICAL CONSULTANCY

- **Maintenance** assessments and system-specific plans
- Customized solutions for optimizations
- **Spare parts of any kind**
- Documentation, standards and procedures
- Safety assessments and support

BIOLOGICAL CONSULTANCY

- Water quality analysis & optimization systems
- Fish welfare support
- Production plans
- Critical operations support (procedures and chemicals for biological start-up, deep cleaning at shutdown, vaccination...)
- Training
- International certifications assistance
- Biosecurity assessments and implementation

AUXILIARY SYSTEMS

- Water intake system
- Wastewater treatment systems
- Extensive recycling of process water
- Grading systems
- Chemical dosing system (bath therapies, pH control...)
- Emergency generators
- Algae production systems

“STANDARD BUILDING BLOCKS FOR HIGH EXPANSION FLEXIBILITY...”

MAINTENANCE

Let us help you stay ahead and with an optimized system



- Do you have a plan?
- What is the worst that can happen to the system?
- What are the consequences?
- Should the component be changed or repaired?
- What is the expected lifetime?
- How long is the delivery time?
- Should the spare part be in stock?...

One of the keys to running a fish farm successfully is planned and well-performed maintenance. It is difficult to put a price on maintenance, but seen in the light of unexpected production loss, it is worth to consider your precautions.

At Alpha Aqua A/S, we know the importance of keeping your system in good shape and being proactive to avoid unnecessary downtime. We believe in a constructive dialogue where all aspects are taken into consideration in relation to the system. And we want to help keep your system optimized.

As such, we offer a range of maintenance and spare parts solutions best suited to your system:

1. **Maintenance assessment**
By assessing the system, we make a maintenance plan for you to follow on a daily basis
2. **Maintenance services**
We perform the maintenance based on a maintenance agreement
3. **Spare parts**



CONSULTANCY SERVICES

Many years of experience make the difference

With experience working in over 75 different RAS and flow through systems over the last years, ALPHA Consultants are prepared to assess, review and assist you. They will help you optimize your system - either with a technical or an operational approach - and in case of troubleshooting.

Biological & Biochemical consultancy

Understanding what happens in the system's biofilter and how to interpret the sampling readings is key to a better development and safer system. Likewise, the biochemistry and its interactions with the process water could be the difference between a robust fish and a non-performing one.

Operational & Technical consultancy

From feed management to water usage, flows and internal patterns. All is considered when aiming for optimization in the overall operation. Do you think there is room for improvement and/or optimization? Let us analyse it and offer a suggestion.

Energy consumption

By improving operational routines, perhaps by technically altering the energy consumption or by re-utilizing the already used energy (e.g. heat exchangers), the operational cost can be reduced. Fish, feed and energy - we can manage it all together.

Management support

Let us take care and assist you during downtime with our schedule and procedures for cleaning, disinfection and re-startup of the biological activity prior to your fish being stocked.

Do you need specific assistance at critical points (vaccination, stocking, pre-stock system assessments...)? Let us be your eyes on a wide data analysis based on your system to give you some insights into potential final adjustments for better running of it.

Aiming for a new international certification? We have the tools and the experience. Let us be your partners in the process.

TRAININGS

- **Basic RAS**
(biochemistry, feeding, water management...)
- **RAS technology and Equipment**
Basic maintenance and functioning
- **Biosecurity & Sanitation**
Creation of a Biosecurity Plan & a Veterinary Health Plan
- **Farm management tools:**
Production planning/prognosis (KPI and its use)
- **Introduction to International certifications**



SPARE PARTS

A system is no stronger than its weakest link, and the reliability, durability and precision of each component is vital for a well-functioning system. Therefore we have found the best components for the job, and if you need anything specific, we will try to find the best solution for your system.

We offer spare parts solutions within:

- UV-filters
- Drum filters & screens
- Ozone-generators
- Biomedia & biofilters
- Pumps of any kind & frequency converters
- Oxygen distribution cabinet
- Oxygen cones
- Intake systems
- Sludge treatment units
- Blowers
- Ventilators
- Sensors for any purpose
- Electrical standalone solutions
- Valves and other pipe needs

"WE PROVIDE A HIGH LEVEL OF TRAINING SUBJECTS..."

“WE RE THINK THE USUAL AND PUSH THE LIMITS FOR A BETTER AQUACULTURE...”






DEVELOPMENT PRODUCTS




We will continuously innovate and improve our ALPHA systems with development products to optimize your business...



Life organism pump

-  Gentle and controlled pumping of microalgae, copepods, rotifer, artemia and fish larvae
-  Preventing pocket transportation and keeping high biosecurity standards by isolation of media
-  All controlled by a user-friendly interface

Satellite OxyPanel 3.0

-  Control O₂ addition and emergency O₂ in a user-friendly and comprehensive approach by design
-  Local installation allowing remote interaction at specific points of the system
-  All safety features enhanced by specifically made cabinet allowing work access and avoiding unintended changes of the system setup

RESEARCH

Rethink the usual, uncover out needs and challenges and turn them into solutions. Break the status quo barriers and don't be afraid of asking "why" as many times as needed.

DEVELOPMENT

Bring the ideas to reality, create the solution and test it, review it, improve it and test it, and then repeat the process once again until it is a fully developed product.

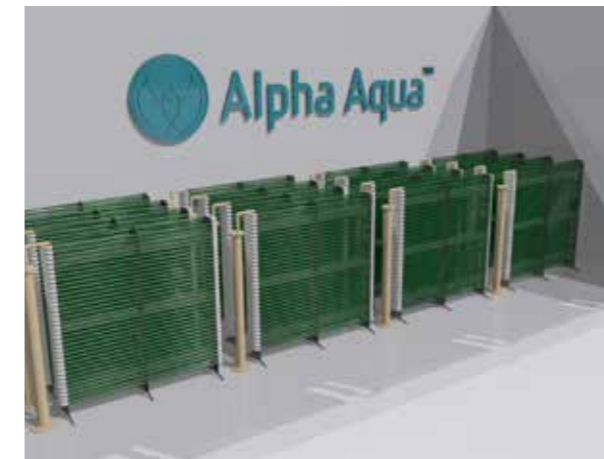
Don't forget to be pragmatic! Focus on keeping it simple and make it happen.

IMPLEMENTATION






After all, it needs to fulfil its task, be user friendly and economically viable.

...ALPHA FOCUS!

At ALPHA, we keep in mind this focus in all we do so we can offer our clients the latest developments fully tested and ready to be installed.



High concentration algae bioreactors

-  With a setup prepared for controlled production of algae for hatcheries, bivalve production, pharmaceuticals, biofuel...
-  Rhodomonas, Nannochloropsis, Isochrysis, Spirolina, Thalassiosira...
-  Easy to assemble, maintain and clean
-  Automatic control and fertilizing system eases the use and ensures a steady and controlled production while allowing higher densities (cell/ mL) than regular systems
-  Quick ROI

Don't miss any of these or other development products - sign up for our ALPHA News at our website www.alpha-aqua.com.

WANT TO KNOW MORE?

