

sustainable · future-oriented

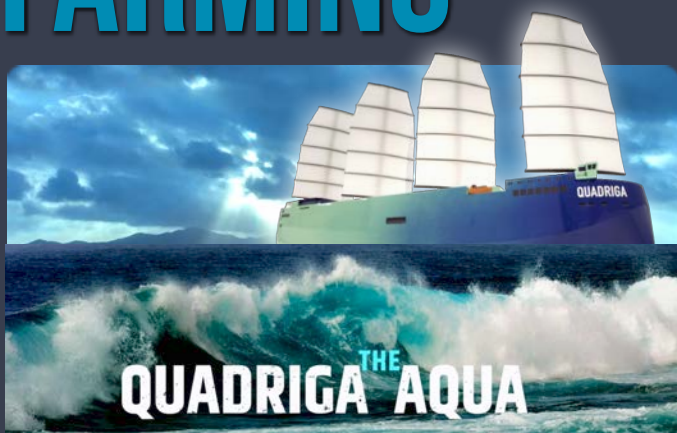
# AQUA

## culture



NOTHING  
LESS  
THAN:

# THE SOLUTION IN FUTURE FISH FARMING



Uwe Köhler: 'Green Ecology 2022 is ready to earn big money.'

# 1

SAILING CARGO · HAMBURG · GERMANY



**U**we Köhler enters our editorial rooms, smiles at us friendly and asks modestly for a cup of tea: 'Sorry, I am a little excited about our story to be published with you. Where do we start?' A big impressive man in front of us. Full of energy and in the knowing of his wright way he and his team passed, on the developing nothing less than the groundbreaking alternative solution for fish farming fixated to a location. The concept of the Quadriga Aqua as a mobile farming arrangement does not only solve the majority of known problems of existing fish farms, but expands the farming options to nearly all waters including the open ocean. The Quadriga Aqua was invented in the spirit to reconcile the sustainable use and the preservation of the marine environment. But the project is already more matured than being an idea or a vision only.

Here comes the **first sustainable & mobile aquaculture** on board of a sailing ship with **high-end circular-process technology**. This ship combines state-of-the-art Sailing Technology, electric engines and ship-based sustainable aquaculture, supplied with **100% emissions-free** energy through its own renewable sources and thereby, avoiding fossil fuels. It feeds the fish with high-quality organic feed - without medicines and artificial substances. This is currently the **most sustainable and environmentally friendly way of seafood farming**.

The Quadriga Aqua will be the largest sailing ship in the world and would be a contribution, to improve the supply of food from the oceans in the future.

This project is driven by the idea to respond to the worldwide increasing protein demand of a growing global population, while natural fish stock continues to decline dramatically.

**M**obile fish farming on the oceans will be a logical step in supplying markets with sustainably grown sea food - and this market is growing exponentially.

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EXPERTISE  
& KNOW  
HOW:



One of the leading providers of global maritime services, based in Hamburg, Germany.



The shipbuilding engineers located in Hamburg, Germany are internationally established designers and architects.



The Dutch naval architects are the global leaders in modern and highly efficient sailing systems.



International classification & certification company.



The leading providers for fish processing machinery from Denmark. Supply chain process technology - from our vessel directly to any destination.

Planning, testing and calculation of the project has been completed. Well-established and renowned partner companies cater for construction and successful operation of the ship.

As part of the Döhle Group, the shipping company **Peter Döhle Schiffahrts KG** stands for professional project management, construction supervision, operation and ship management. The company largely advised in ship design and construction planning.

The **SDC Ship Design & Concept GmbH**, the shipbuilding engineers located in Hamburg, Germany are internationally established designers and architects, experienced ship designer and will ensure the complete functionality and safety of the ship design.

**Dykstra** will design the sailing and rig-technology for carbon neutral propulsion of the ship. Due to the completely automated sail setting and maintenance, the Dynarig called system is highly efficient as compared to traditional sailing systems.

The international classification and certification company **Lloyd's Register** became project partner as well. Lloyd's experts have been supporting the project since its inception. They will grant authorisation to operate the ship.

**Uni Food Technics** from Denmark will be responsible for the processing of the ready for slaughter fish harvest. The fish will be skinned, sliced, head on gutted and directly filleted on the ship, using Uni-Food Technic fully automatic machinery to ensure 90% boneless fish product. Using Flash Freezing on the boat, to extend the shelf life by 7 days - stored in reefer containers - frozen according to customer's requirement. And soon after, directly transported to a suitable port destination.

Circular economy and sustainable management no longer place niche in business areas. As lack of drinking water, food and infrastructure is increasingly jeopardizing life's foundations and primary economy.

Global awareness and regional action form the strategic basis of almost all industries worldwide. In particular, the complete closure of reproduction cycles after care in manufacturing processes and adequate precautions for the smooth running of supply chains underpin successful economies. Caution shows quality on the market. This counts more than ever. Green and sustainable economy is more efficient than many conventional concepts. This teams ideas and especially their network of young board companies & functioning start ups, are offering economic solutions for the world market.

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'We need to take pressure from the coasts and fjords', Professor Waller reminded. 'Stationary aquaculture will be returning from profitability in the future, because it is no longer ecologically accepted by the people!'

### COMPARISON OF AQUACULTURE SYSTEMS - 2021

#### MOBILE SHIP - BASED AQUACULTURE



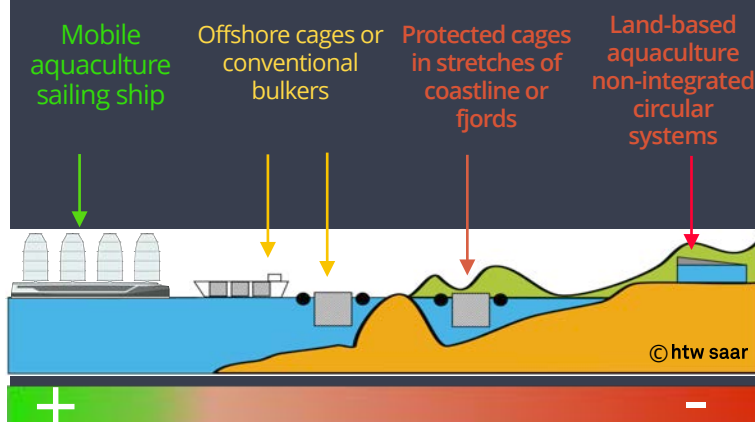
- Sustainable production
- Natural environment for fish farming
- Ideal biological conditions
- Premium product at reasonable pricing
- Use of renewable energies for production, propulsion and transport
- Controlled feeding without losses
- Diversification potential for various species

#### CONVENTIONAL AQUACULTURE



- Organic waste, disinfectants or antibiotics contaminate coastal regions
- Escapees harm health and robustness of wild populations
- Waste streams act as plant nutrients and foster the excess growth of phytoplankton
- Increasing medication for the defence of parasites, prevention and pest control
- Increasing consumer's rejection of aquaculture products

### STRESS BAROMETER OF THE ECOSYSTEM



# 3



PROF.- DR. UWE WALLER  
MARINE BIOLOGIST

<https://nextgeneration-cargo.com/wp-content/uploads/statements/Uwe-Waller-States.mp4>

Today atlantic salmon aquaculture is perceived more and more problematically by the consumers. So there is close to going new ways.

The Quadriga Aqua team has developed real solutions for a high-quality salmon product in an environmentally friendly and regenerative form of rearing. This project is suitable for future and sustainable fish farming.

Natural stocks of Atlantic salmon have shrunk to a minimum worldwide. It is almost impossible to draft these stocks in the future.

The market can only be served via aquaculture economy. The capacities of cagefarms at the norwegian coasts are no longer sufficient.

The biggest problem is the warming of water along the coastal areas. Temperatures are from 2° to 5° degrees higher than Atlantic salmon needed to feel comfortable and grow healthy. The salmon suffers more and more from oxygen deficiency and is infested by parasites. Stationary aquaculture can hardly offer the conditions that the salmon normally needs. Constantly running fresh water at a temperature of 14-15 degrees. Temperatures on the sea costs fjord farms are measured today by 16-18 degrees with a rising tendency.

The resulting problems, combined with rising temperatures, suggest that aquaculture cannot reasonably continue to operate in this manner on the coasts for much longer. Governments in countries where aquaculture is practiced are keeping a watchful eye on salmon farming, which in this form is causing increasing damage to ecosystems downstream of cage farms. The whole biological balance gets more and more 'out of control' as soon as one source permanently releases nutrients on the seabed!

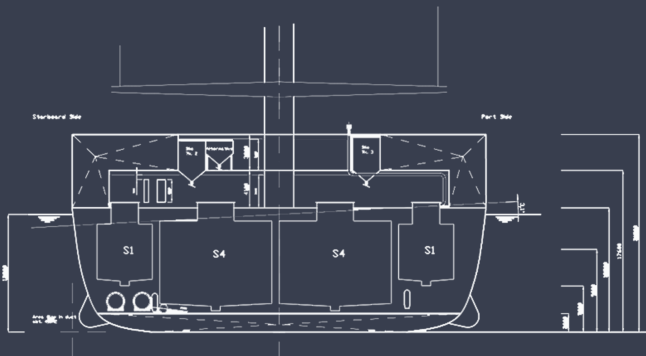
The QA team solves this easily by moving to mobile concepts to the oceans. They only drive water with ideal living conditions for the salmon. Atlantic Salmon · Salmo Salar is the most popular food fish in germany and as well in high demand worldwide.

# AQUA

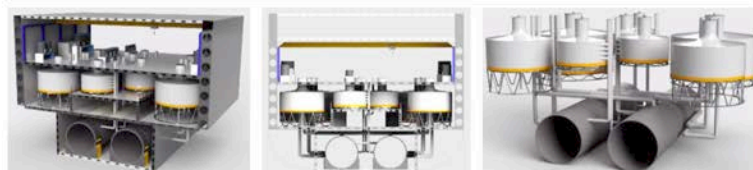
## culture



'Our circular process technology works very successfully on land', Professor Kimmerle states. 'We will bring this back to the oceans in a sustainable way.'



Marine fish needs fresh water all times. The species-appropriate handling is mandatory. We translated the biological constraints into scalable & numerical models.



3D-animated pictures - breeding tanks under deck - fresh water tubes.

# 4



PROF.- DR.- ING. KLAUS KIMMERLE  
PHYSICAL PROCESS ENGINEER

<https://nextgeneration-cargo.com/wp-content/uploads/statements/Klaus-Kimmerle-States.mp4>

The circular-process-system has been working on the country for a long time and has been testing successfully for years. Kimmerles team faced the task to make this system scalable and mobile. They have succeeded in this. The salmon is perfectly suited for their system.

The salmon is a very sensitive fish. To offer salmon as close as possible its nature requirements, demands a very high technical effort. In example - the technical implementation of fresh water supply is complicated. On a ship, however, it is less elaborate and very flexible. This team solved this problem as first worldwide.

For a chemical- and drug-free production, the species-appropriate handling of marine fish is mandatory, as this is the only way to ensure a sustainable clocked operation on board of the sailing vessel. Maintaining a species-appropriate environment on board is also a necessary condition for successful production!

This means that if the project is successfully funded, it will go into it with a great deal of prior knowledge and vigor and be able to support this project effectively. This is of great personal concern to them, because they do not only want to be complaining and warning - they are capable of action and ready to do everything for an improved environment and enhance sustainability! Not only pointing out the problems, but offering solutions: That is their task! And finally produce the 2.5 million tons of salmon that are produced every year using modern farming systems. 70% of the earth's surface is covered by water. We can - and should - start using this vast space for our food production in order to be prepared for the tasks of the future.

Today, globalization is already showing us unequivocal limits. Therefore, we should also use the ships precisely where short distances to the consumer can be ensured. An example: to offer this delicious salmon product to the entire german market, it would need 50 ships, at a sales volume of 1.4 billion € /year.

Who is first to start this big green business?



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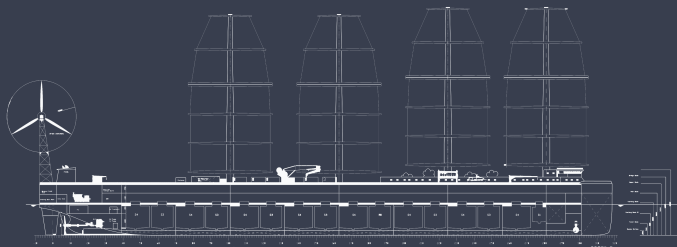
'We have been building and operating ships for more than 60 years. Currently we manage approximately 500 own ships worldwide.', Jan Görke says. 'A sailing ship concept like the Quadriga Aqua offers, is a matter of the heart for us. We want to secure a future for our families with intact oceans.'

## BIG · GREEN · SUSTAINABLE

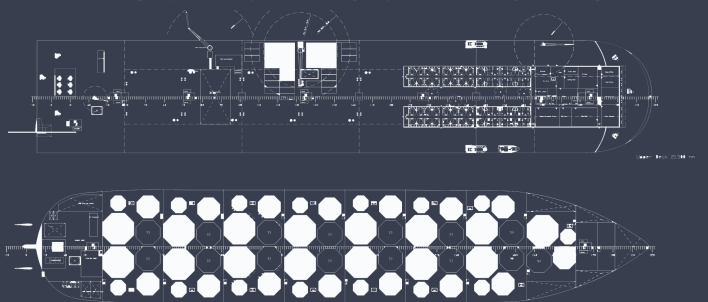
Will be the largest sailing ship ever built : 248m long · 84m high.

### THE QUADRIGA AQUA · MOBILE AQUACULTURE

PROD. CAPACITIES	3.400 T FISH/YEAR
EMISSION SAVINGS	UP TO 98%   #0% CO2
SPEED	5-18 KNOTS
DYNA RIG SAILSYSTEM	4 MASTS
SAIL AREA	7.200 QM
ENGINES	HYBRID ELECTRIC
POWER SUPPLY	WIND & WATER GENERATORS



Architect drawing · Aquaculture process sailing ship © sdc ship design hamburg



# 5



DIPL.- ING. JAN GÖRKE  
HEAD OF NEW BUILDING · PETER DÖHLE KG

<https://nextgeneration-cargo.com/wp-content/uploads/statements/jan-Goerke-States.mp4>

Jan Görke at the PDS KG newbuilding team will support and coordinate the necessary development testing and construction steps until the ship is completed. After delivery, the ship passes to the established fleet management structure of the company. Looking to the scheme and technical aspects of the project, the best of both worlds shipping and fish farming, shall be combined. Environment-friendly aquaculture process technology: 15 independent production lines for fish farming, breeding in modern production tanks designed for hosting the fish in their different growth periods, continuous supply with fresh seawater, Hydro turbines for supplying the ship with electric energy from renewable sources, state-of-the-art highend satellite navigation systems plus the enhanced sailing system. The Quadriga Aqua team is proud that these different techniques can be successfully combined in one vessel.

The beginning of the actual construction phase of Quadriga Aqua is to start following a decision by future investors and the beginning of the partnership with the Sailing Cargo & partners. In the first six months, the ship design will be finalized and the contract constellation will be negotiated with the potential building shipyards. The science team begins to build the scale-true model plant, in which test runs with current base material are carried out - The material and the plant are finely coordinated. This first construction phase is calculated with six months. After the completion of this phase, the ship-engineering equipment runs its trial, followed by the system check for sailing assembly and finally the delivery of the ship to the owner and operator. The Döhle Group offers all shipping-specific services for the construction and operation of different types of ships.

None of different developer teams worldwide is developed as far as the Quadriga Aqua project. These other concepts are merely concerned with the transport of goods. We have already done all procedures concerning approval to obtain the necessary authorisation.









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## ECONOMIC EFFICIENCY

### RETURN OF INVESTMENTS

MODEL 1		MODEL 2	
3.400 <sup>per year</sup> t	HARVEST 	3.400 <sup>per year</sup> t	HARVEST 
13.50 \$	MINIMUM ACCEPTANCE WHOLE SALE PRICE 	72.35 \$	RETAIL PRICE GASTRO EXCLUSIVE 
45.90 million	VOLUME 	246.0 million	VOLUME 
32.90 million	GAINS 	233.0 million	GAINS 

### INVESTMENT

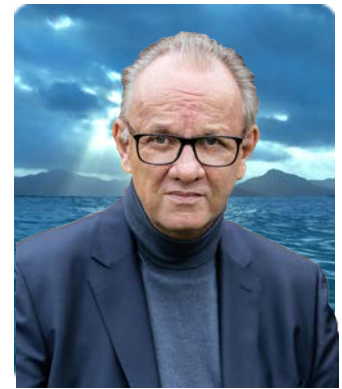
96.00 million \$	
SAILING SHIP INCL. AQUACULTURE TECHNOLOGY	+ OPERATING STAFF FIRST 5-10 YEARS

### TIMELINE RETURN OF INVEST

4 - 7 years

AFTER ONCE INVESTED, DEPENDING ON WHOLESALERS STRUCTURE - OPTION 1 OR 2

AFTER SHIP IS READY BUILT - 2ND YEAR OF OPERATIONS, REACHED FULL CAPACITIES OF FISH PRODUCTION



UWE KÖHLER  
CEO & FOUNDER · SAILING CARGO HAMBURG

<https://nextgeneration-cargo.com/wp-content/uploads/Statements/Uwe-Koehler-States.mp4>

The target of the Sailing Cargo and its partners is to enter this market with an excellent product, produced independently in sustainable organic - sashimi graded - premium quality.

Their calculations based on current market datas displayed in model 1 & 2. Model 1, first refer to one ship in the period of one year and the current minimum purchase market price (13.50\$/kg, actually). Model 2 shows the data on the basis of the kilo price that the Swisslachs (Swiss Alpine Fish AG) achieves with a comparable organic salmon product - Retail price actually 144\$/kg. Our assumption refers to a direct marketing to high-end gastronomy at 50% of the Swisslachs price, that means - 72\$/kg.

These figures clearly show that this business can operate profitably after 5 years. There is already an acceptance request by different Seafood distributors to receive their complete capacities of the first productions. And salmon is an ideal fish to start with: It is in demand, fetches a high price and it is of great nutritional value because Salmon is healthy, rich in vitamins, it transports unsaturated fatty acids and also tastes good... in short, salmon is an excellent first candidate for this project.

Further requests on other fish varieties in different waters and other regions are on their table.

With ships of the next generation, which will be even exceeding the presently planned once, they're able to offer partners worldwide a most sustainable form of transportation. And the demand for this is gigantic! Especially for the next generation of people - coming after us. It's time to change the conventional method of transportation of goods across the seas. It can be done! Further concepts in planning like Plastic waste collecting · Autonomous sailing · Arctic freshwater collecting · Accumulating biomass utilizing · Algae disposal and recycling · Freight transports of any kind · the potential for future asked concepts could be extensively expanded. Ideas and feasibility concepts are widely developed by this German Science & Technology team.

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This project brings good news for the oceans and the environment. And the names of the ambassadors supporting the Quadriga Aqua project, can be read by any observer of their big sails canvases - worldwide.

## MEDIA & MARKETING

TV & Media counters · STREAMING Services · Pay TV

Social Media Campaigns · Influencer Marketing ·  
Cooperations with Science · Media

Science & Economic Forums · Filmfestivals ·  
Cooperations with EU | UN Programs & NGO's ·  
Greenpeace · BUND · WHO

A global media attention for this project is sure to the team & partners. The Head of Program Content and Sales of Discovery Channel Europe situated in Munich, responded: 'Big Green and best - the largest sailing ship in the world brings high quality organic salmon to people?! I smell high TV ratings.' All media partners have expressed all the interest and provide range calculations of more than 1 billion households. This corresponds conservatively to 2-3 billion people, who will see their images and reports on linear TV and their media counters. In addition, YouTube Instagram and Twitter and the far-reaching networking through partners - they are expecting up to 5 billion possible viewers.

All images and reports are released by the media partner and thus the images are controlled. Not only displaying the project, but all the partners and brands

involved that will be presented in the reports and want to see. As well the storytelling is developed by themselves.

After five years of development, the Sailing Cargo succeeded in bringing all partners, experts and their expertise for the project to the point.

Sailing Cargo is looking for strong partners to achieve the goal of sustainable and future-oriented organic aquaculture, with the philosophy to protect the oceans and the last free fish stocks.

They will continue this path and set new valuable standards in serving the increasing need of Salmo Salar, as a high quality source of protein and food for humans worldwide.

Only a consistent ecological point of view secures people's lives in the future.

With sail freighters, it will be possible to simply move everything in the future.

### List of links:

[nextgeneration-cargo.com](https://nextgeneration-cargo.com)

### Interviews:

<https://nextgeneration-cargo.com/wp-content/uploads/statements/Uwe-Koehler-States.mp4>

<https://nextgeneration-cargo.com/wp-content/uploads/statements/Jan-Goerke-States.mp4>

<https://nextgeneration-cargo.com/wp-content/uploads/statements/Klaus-Kimmerle-States.mp4>

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