Circular solutions for plastic equipment from the aquaculture industry

Aquaforum, Los Lagos region 2024

Puerto Varas 2024-11-28

Marie Stoknes

SCALEAQ GROUP

SCALE AQ Seabased

SCALE AQ Software

SCALE AQ Chile

Moen Marin
A PART OF SCALEAQ

MASKON
PART OF SCALEAQ

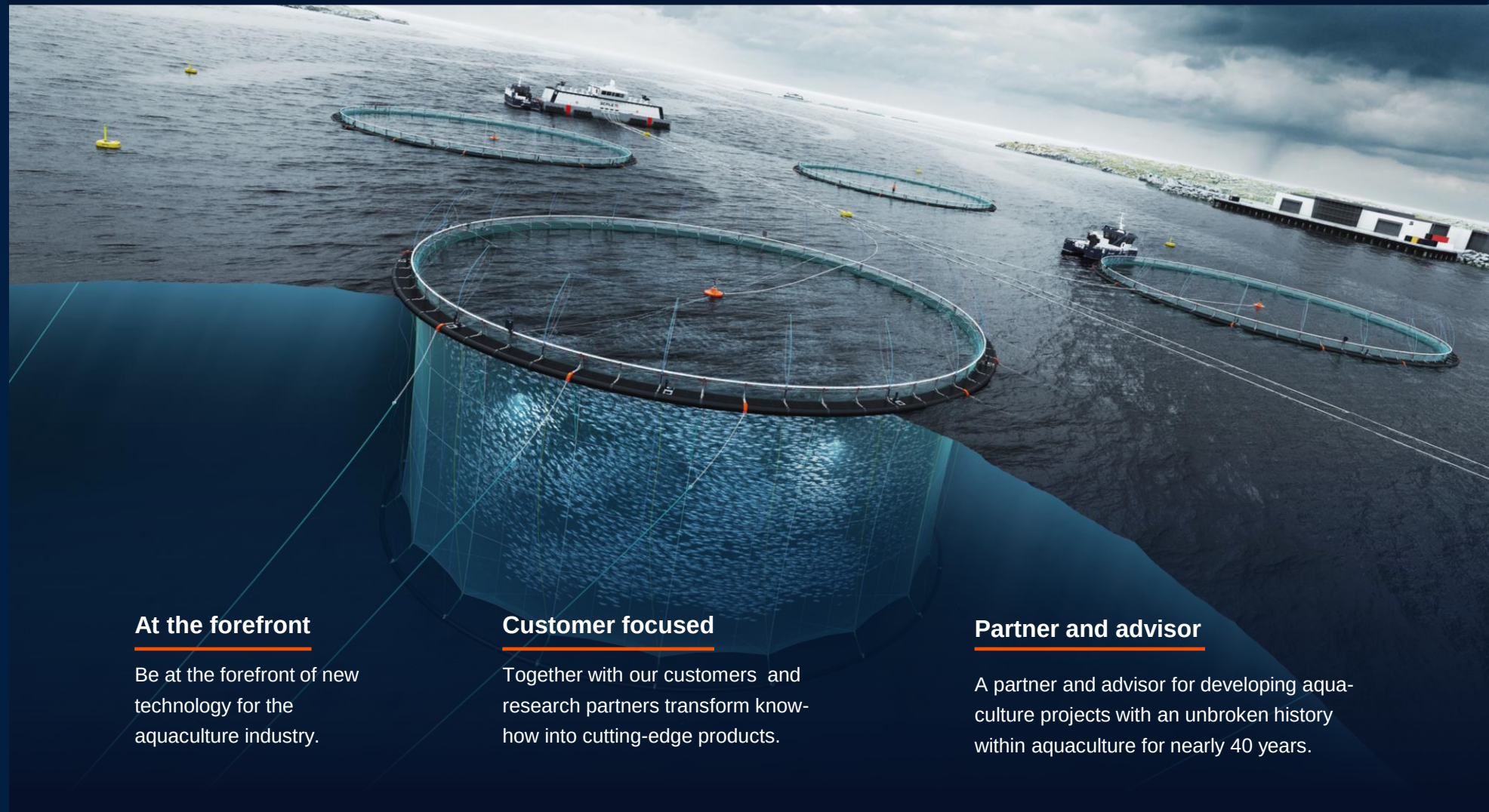
40 years of experience

900 employees

3.4 BILLION NOK in revenue

33 locations in 8 countries

A Norwegian based company, providing high-quality solutions and services for the fish farming industry world-wide.



At the forefront

Be at the forefront of new technology for the aquaculture industry.

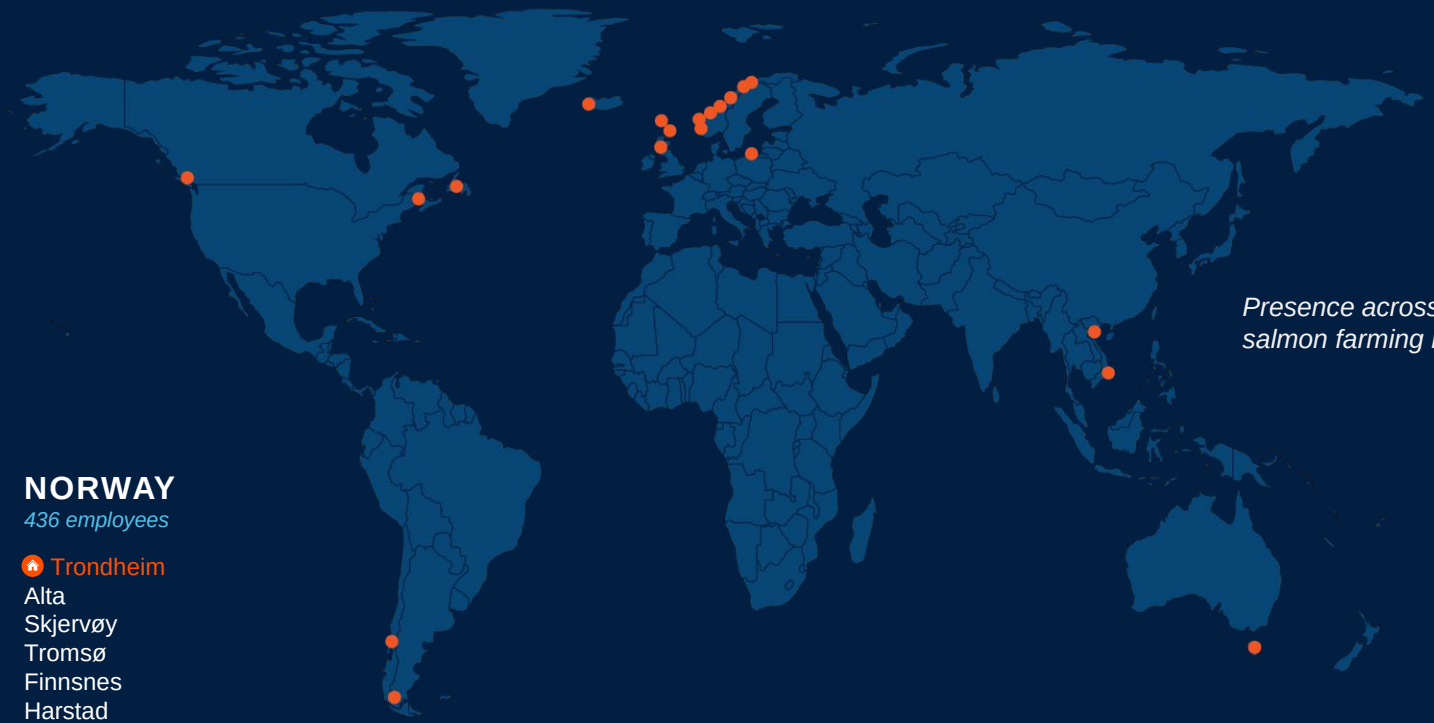
Customer focused

Together with our customers and research partners transform know-how into cutting-edge products.

Partner and advisor

A partner and advisor for developing aqua-culture projects with an unbroken history within aquaculture for nearly 40 years.

Providing high-quality products, solutions and services for the aquaculture industry across the world



Presence across all salmon farming regions

NORWAY
436 employees

Trondheim
Alta
Skjervøy
Tromsø
Finnsnes
Harstad
Tovik
Bodø
Sandnessjøen
Herøy
Rørvik
Stjørdal
Frøya
Hitra
Skodje
Florø
Bergen
Austevoll
Bømlo
Haugesund

CANADA
8 employees

Campbell River
Saint John
Newfoundland

CHILE
208 employees

Puerto Natales
Puerto Varas

UK & IRELAND
14 employees

Fort William
Shetland

OCEANIA
7 employees

Hobart
Huonville

ICELAND
4 employees

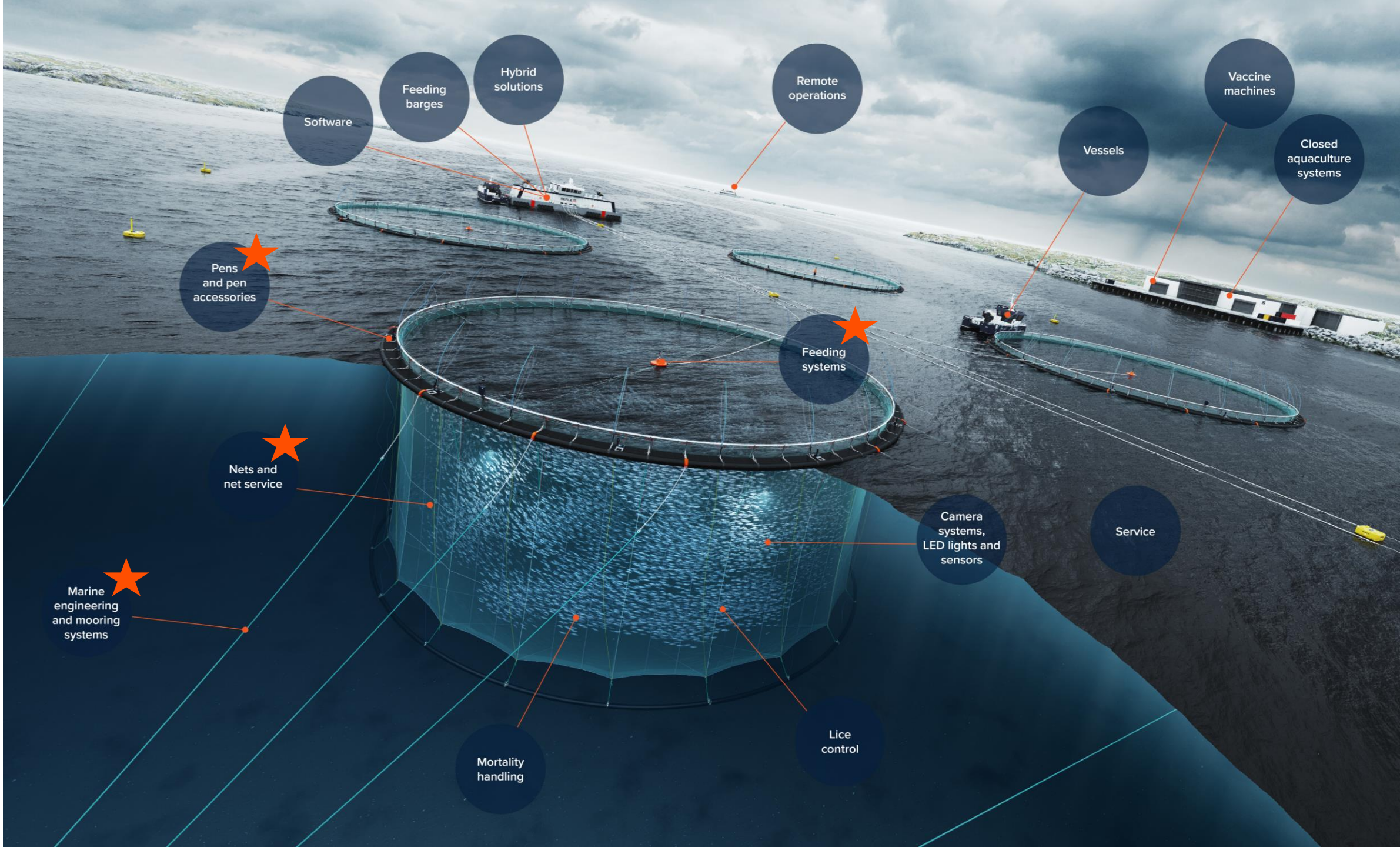
Reykjavik

VIETNAM
202 employees

Nha Trang
Hanoi

POLAND
4 employees

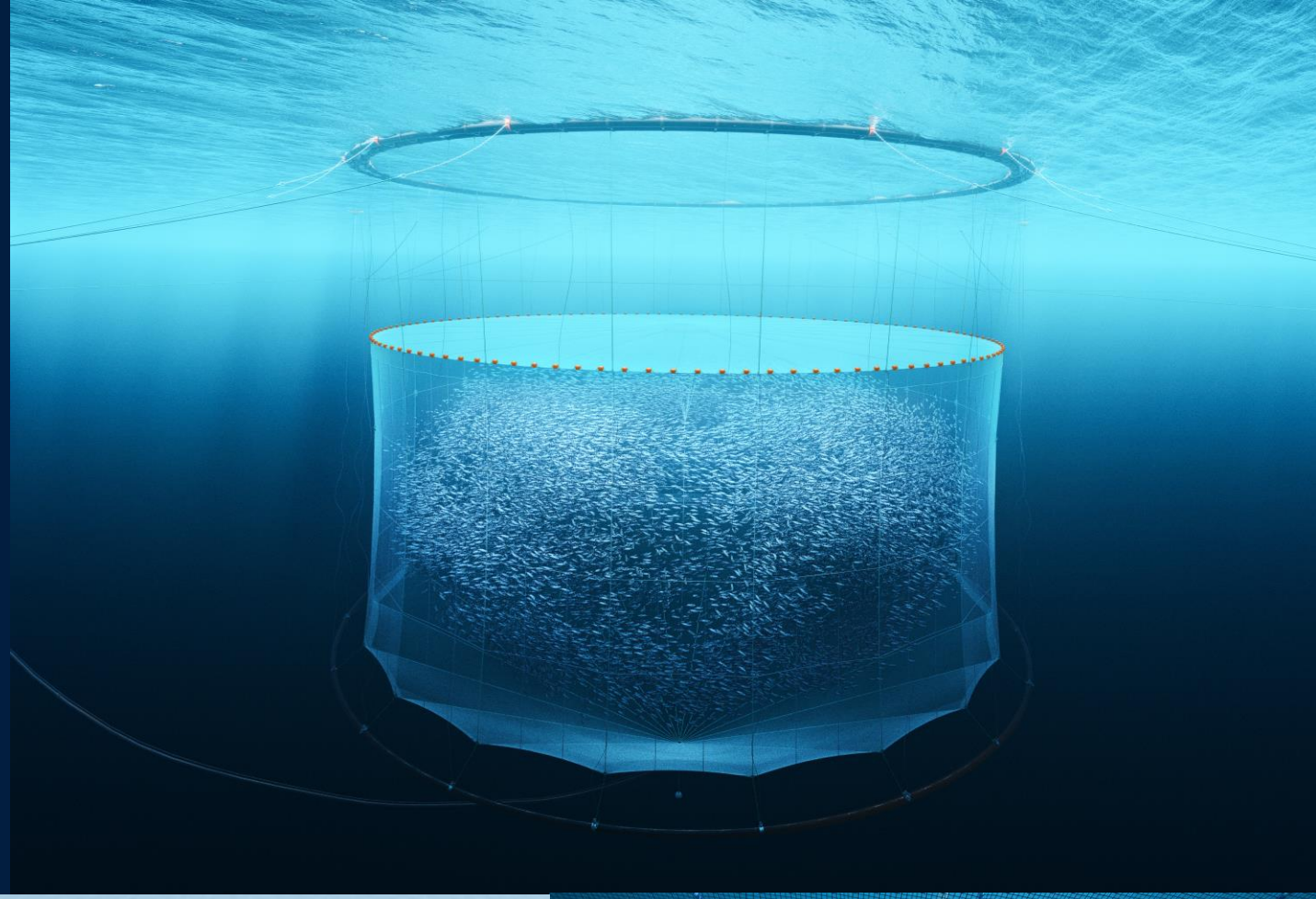
Gdynia

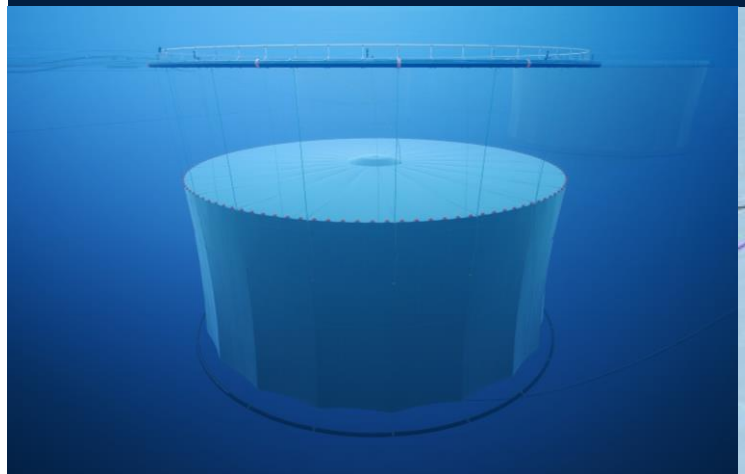

Software
Feeding barges
Hybrid solutions
Remote operations
Vaccine machines
Vessels
Closed aquaculture systems
Pens and pen accessories
Feeding systems
Nets and net service
Camera systems, LED lights and sensors
Service
Marine engineering and mooring systems
Mortality handling
Lice control

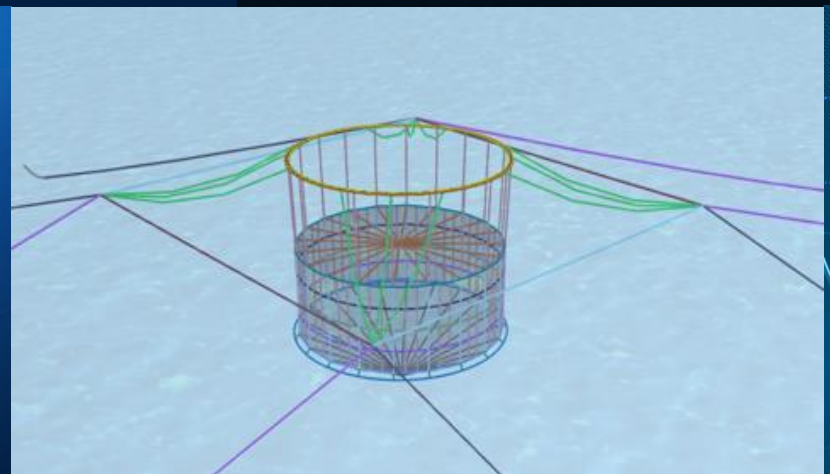
ScaleAQ Subsea system

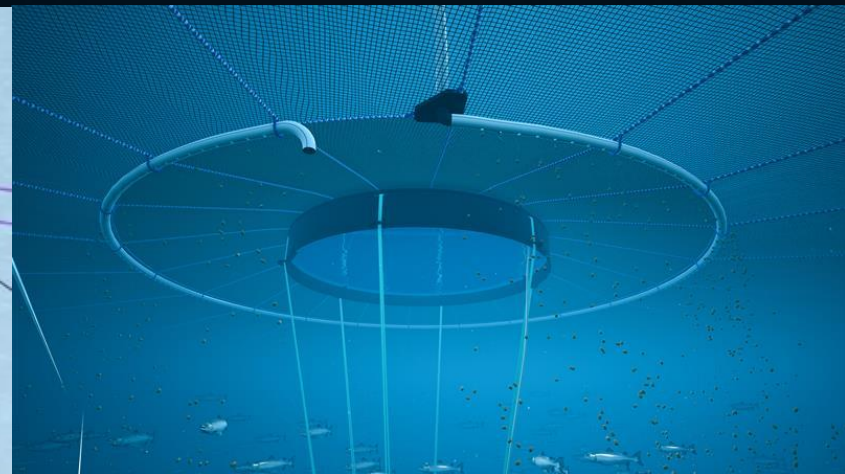
Exposed Cage System

- Lice-Free Farming
- Reduced wave impact
- Stable Temperatures
- Suited for exposed sites
- Submerged 25-30m



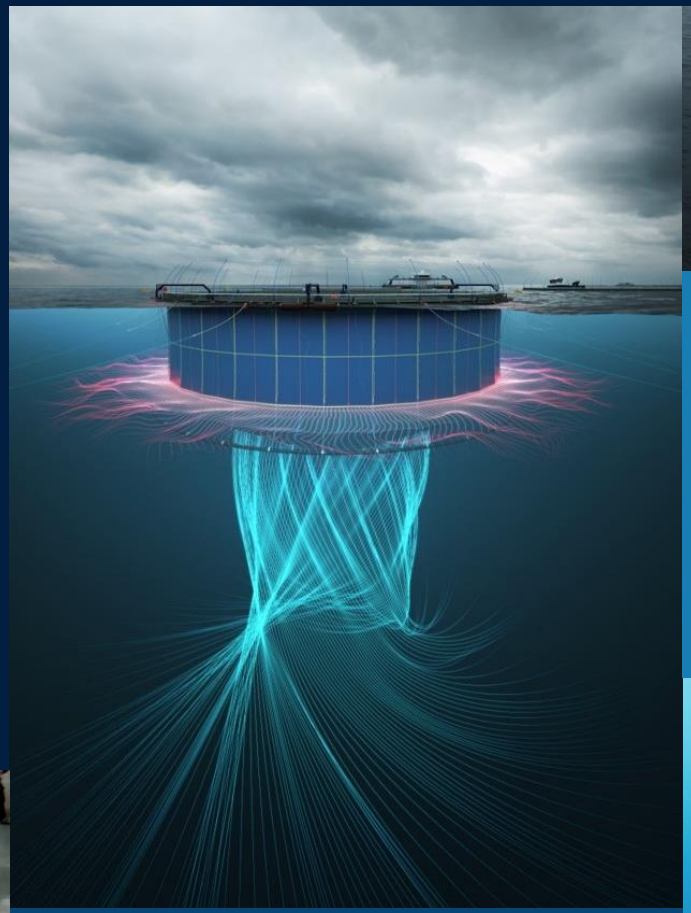






VORTEX Semi Closed Cage

- ✓ Lice Reduction
- ✓ Protects against algaes
- ✓ Stable Water Temperatures
- ✓ Stable oxygen
- ✓ Adjustable water flow

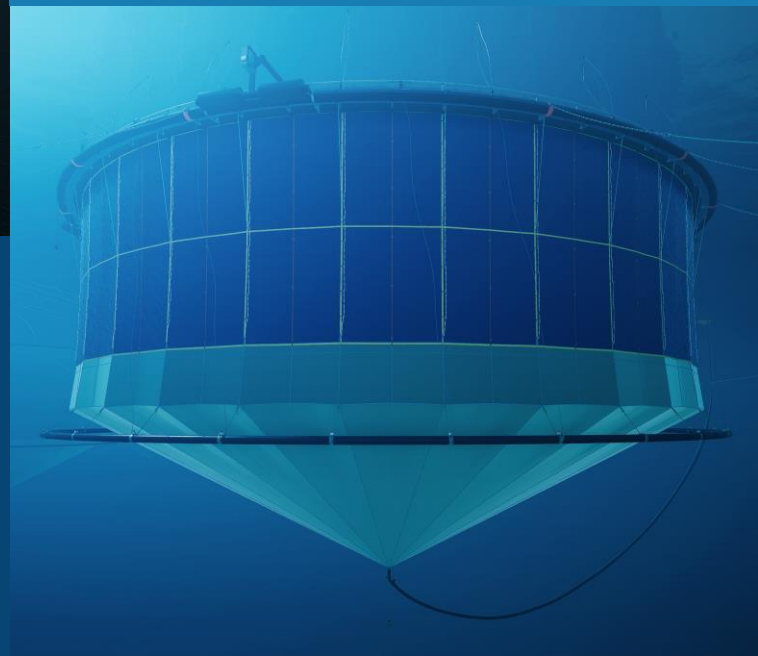


Functionality

- Thrusters creates a vortex that brings water up from 15-30m depth
- Water flows upwards in centre all the way up to water line
- The constant circular water flow makes «old» water exit the cage on the edges

Specifications

- Patented
- Cage 157m / 160m
- 4 thrusters
- 20m side wall
- 15m skirt + netting
- Midgard© setup



ScaleAQ strategic pillars of sustainability

Circular economy

We will become circular in order to reduce climate emissions, the use of virgin raw materials, and increase value creation

- Reduction of plastic emissions
- Product design, material use and circularity
- Reduction of greenhouse gas emissions

Technology for zero emissions and good animal welfare

We will contribute to reducing emissions, protect biological diversity, ecosystems and ensure animal welfare

- Protect biological diversity, ecosystems and animal welfare
- Product quality, lifetime and safety
- R&D and technology development

People and interaction

People at the center - we will work long-term and systematically with our sustainability commitments

- Employees health and safety
- Competence development of employees
- Business model, risk management, compliance, transparency and ethics

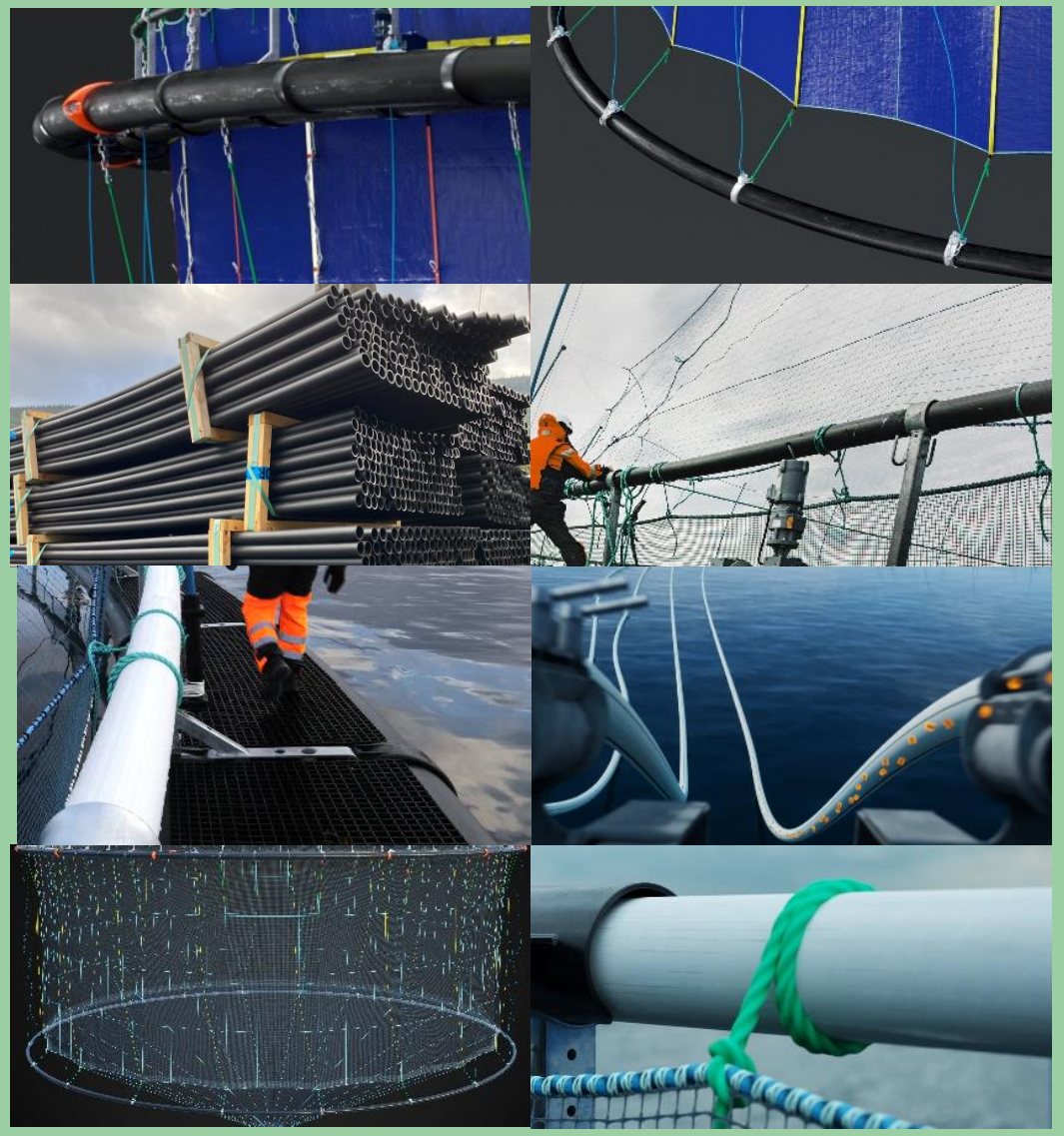
Why circular economy for plastics

- The fish farming industry has a large consumption of plastics
- World’s economy today is 8,6% circular but only 2,4% for Norway
- European Green Deal
  - Goal of reducing GHG emissions by min. 55% by 2030
- Regulations in Europe
  - EPR for plastics from aquaculture in 2025
- Chilean Plastics Pact from 2019 part of the Plastic Pacts Global Network

Ref: Hognes & Skaar, 2017; systemiq, Handelens Miljøfond og Mepex i 2023

SirkAQ

Establishing and implementing sustainable circular value chains for plastics from discarded equipment from the aquaculture industry.




Kråkholmen, Bjørøya

Responsible organization: Scale Aquaculture AS

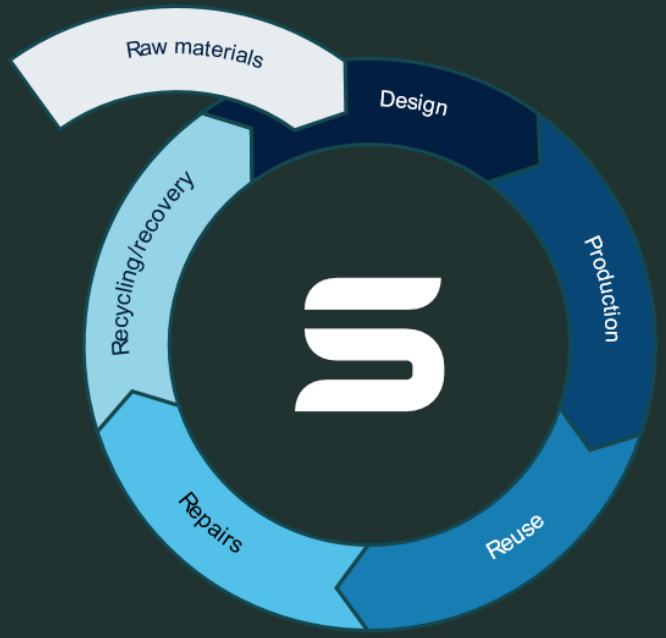
Partners: Hallingplast, Sinkaberg, Oceanize, SINTEF Ocean, Norner Research, OsloMet and Future Materials

Project period: 2023-2025

Funding type: Green Platform

Goal

- Develop processes for reuse, life extension and increased use of recycled plastic into new products for aquaculture or other markets
- Develop eco-design and systemic design for future fish farming equipment
- Develop environmental documentation and digital solutions for traceability through the value chain



12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

ScaleAQ Circular

- ✓ Lifetime extension
- ✓ Reuse
- ✓ Recycling facility
- ✓ Collaboration

Recycling station

- Over 200 tons from March 2024
  - Floating collar
  - Sinker tube
  - Walkway
  - Handlist
- Separation of polymer grade
- Closed loop
- Traceability

New products from recycled plastics

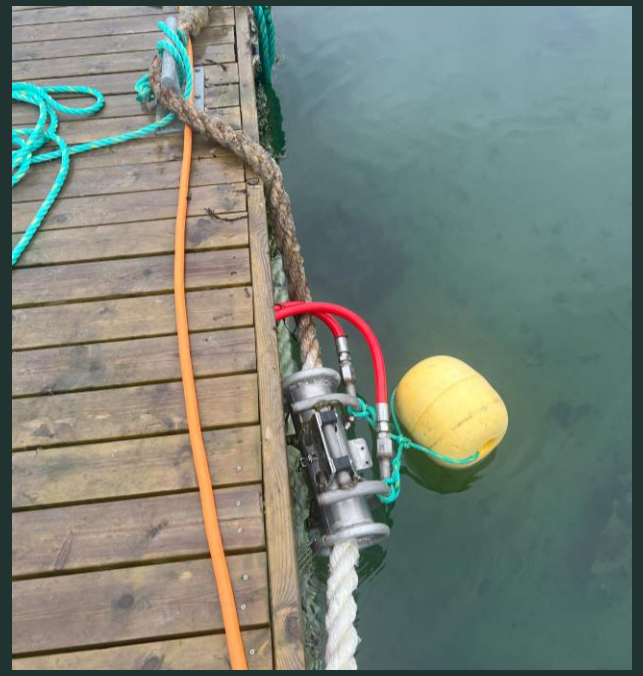
- Increased use of recycled plastics from 2 to 23% from 2022 to 2023 (non-bearing structures)
- Reduction of CO_2 emissions by 50-65% by using 70-100% recycled plastic in the feeding pipes

Used plastic components

Processing

New products

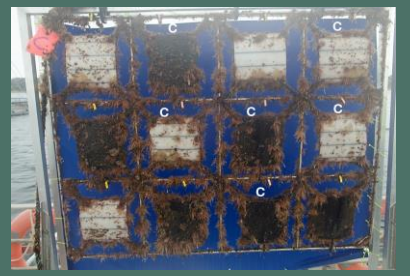
Industrialized production of handrails with recycled material from discarded pens



Test activities within reuse, recycling and life extension

Antifouling tests

Testing various netting materials, floating collar and feed pipe over several months in the sea for the level of fouling




Recycling HDPE net

Recycling test, produce pellets and do analyses to find new market areas

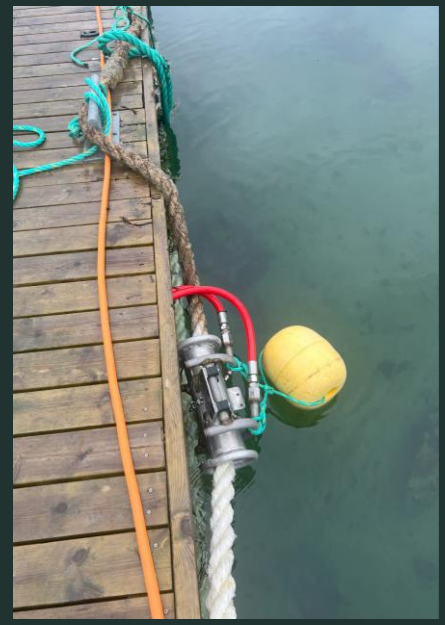
Cleaning of nets and ropes

Net cleaning

- Compare washing robots, netting material and frequencies
- Analyses of the netting in the end

Rope cleaning

- Evaluate if regular cleaning of ropes in the mooring system has any effect on the lifetime and recycle/reuse potential at the end of the lifetime



Ecodesign student work

Buoys

Camera housing

Ref: Isaksen, 2024, Master's Thesis NTNU;
Driving Sustainable Change: Anchor buoy redesign for improved aquaculture

Environmental Product Declaration (EPD)

EPD on our products

- Assess the environmental impact of the product
- Basis for decisions regarding product and environmental development
- Tool for improvements throughout the product's value chain
- Documentation of the customer's environmental requirements
- Data input to our climate accounting

SIRKAQ

Thanks for your attention!

FUNDING:

- Norwegian Research Council, Project no. 340887
- SIVA
- Innovation Norway
- Norwegian Retailers' Environment Fund

SCALE AQ

oceanize

HALLINGPLAST

SinkabergHansen

norner™ The Polymer Explorers

SINTEF

OSLOMET

FUTURE MATERIALS | NORSK KATAPULT SENTER

For more news: sirkaq.com

LCA.no


SCALEAQ GROUP
SCALE AQ Seabased
SCALE AQ Software
SCALE AQ Chile
Moen Marin
A PART OF SCALEAQ
MASKON
PART OF SCALEAQ