

From Policy to Solutions

COMPANY PRESENTATION



planktonic



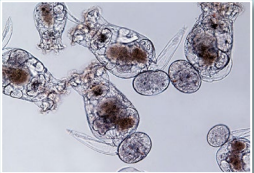
INDUSTRY'S NEED: IDEA GENERATION

A fast-growing world population will lead to a surge in demand for seafood

Aquaculture is expected to play a crucial role in covering these needs

Creating a need for products that improve productivity and support sustainable growth

Hatchery phase



Domesticated species

Nutritional value

Microbial activity

Complex – labor intensive

New species

Special nutritional requirements

Skills and capabilities

Achieve baselevel production efficiencies

On-growing



PLANKTONIC'S PRODUCTS AND VALUE PROPOSITION

Cryo-S,
CryoPlankton Small
Nauplii from the barnacle
Balanus Crenatus
Size: length 200µm/witdth
100µm.



Cryo-L,
CryoPlankton Large
Nauplii from the barnacle
Semibalanus balanoides.
Size: length 320µm/width
150µm



Replace

- Replace conventional Live Feed with **Natural Plankton** with optimum nutritional value, and biosecurity profile

Simplify

- Simplify **operations** with a ready to use live feed as an **off-the-shelf** solution

Improve

- Achieve consistency of **results**, easier **management** of production, significantly better **quality** of the fish

Achieve

- Increased survival and **SGR**, reduced **FCR**, reduced **production costs**, reduced **risk**

OPERATIONS' CONCEPT



Planktonic stages of barnacle nauplii settle naturally on the substrate we provide for them at our farming sites, or on rocks and man-made objects



Barnacles are removed from the substrate where they grow just prior to their natural spawning and brought to the processing plant



The eggs/nauplii inside the barnacles are washed out and get cryopreserved through a unique methodology



The frozen product is then stored in dewars on liquid nitrogen, with unlimited shelf life



PLANKTONIC AT A GLANCE

- More than 70 tones of CryoPlankton sold commercially last few years
- Well proven in industrial use for several species in many hatcheries



Seed funding by Investinor and business angels in 2015.

Founded in 2008 by Dr. Nils Tokle and Håvard Aakerøy – pre-seed funding from business angels



Heavy R&D investments in the period, mainly expenced in the accounts.

Cryo-L, launched in 2016
Ramp up of market activities, building organization, continous R&D and securing patents 2016-2021

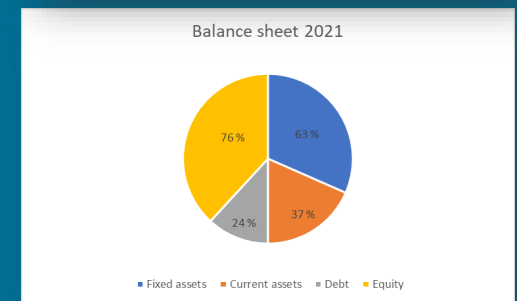
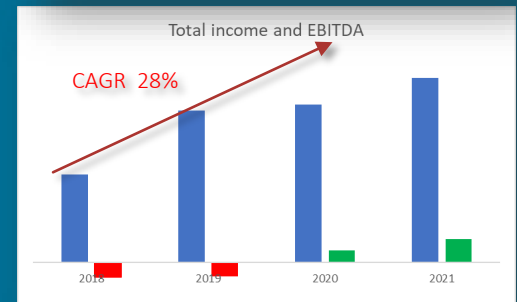
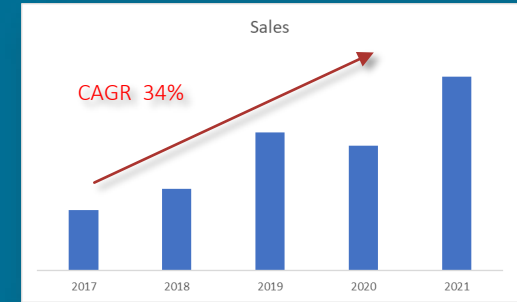
Development of Cryo-S, 2020 – first commercial sales in 2021

Large ramp up in the deployment of barnacle farms in 2021

25% of sales exported.

2022: Strong outlook in key markets – clear strategy for growth

Development of new feed products and trials in 2022/2023



PRODUCTS' KEY CHARACTERISTICS

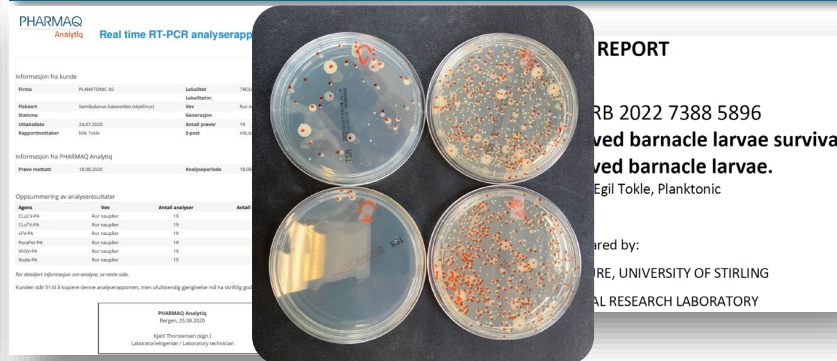
Nutritional value

- No enrichment needed – natural nutritional value, optimal for larval development.
- **Marine DHA/EPA** is stored in the **phospholipids** and not in the triglycerids – makes a world of difference.
- Taurine is important for larval growth/development.

NUTRITIONAL CONTENT	
Average content in g/100 g dry weight	
Protein	67
Lipid	11
Ash	12,5
Typical fatty acid content (% of total fatty acids)	
DHA	22
EPA	25
Total saturated fatty acids	18
Total monounsaturated fatty acids	19
Total polyunsaturated fatty acids	62
Total omega-3 fatty acids	50

Unparalleled Biosecurity

- All production batches are routinely screened and **never found any pathogens.**
- Analyses show prevalence of slow growing bacteria.
- After cryopreservation, nauplii do not have the capacity to develop further into a sessile barnacle.



PHARMAQ Analytic Real time RT-PCR analyse rapport

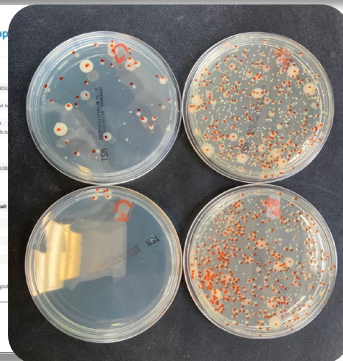
Information fra kunde: PLANKTONIC AS

Prøvetype	Resultat
Stoffskifte	Ikke påvist
Bakterier	Ikke påvist
Parasitter	Ikke påvist
Viruser	Ikke påvist

Oppsummering av analyseresultater

Agens	Metode	Resultat
Stoffskifte	For nægler	Ikke påvist
Bakterier	For nægler	Ikke påvist
Parasitter	For nægler	Ikke påvist
Viruser	For nægler	Ikke påvist

PHARMAQ Analytic
Kjøpt av: [navn]
Leveringsdato: [dato]



REPORT

RB 2022 7388 5896

ved barnacle larvae survival

ved barnacle larvae.

Egil Tokle, Planktonic

red by:

RE, UNIVERSITY OF STIRLING

AL RESEARCH LABORATORY

Easy to use – «of-the-shelf»

- **Always live feed available**, with consistent quality and replicability.
- Less dependent on «user capabilities».
- Preparation process extremely simple, lasting **15minutes per day**



EVIDENCE OF EFFICACY

Faster development of more robust larvae results to earlier weaning to dry feed and more cost effective protocols.

Proven in ballan wrasse production where weaning starts 20 days earlier than with traditional live feed. (Source: Mowi)

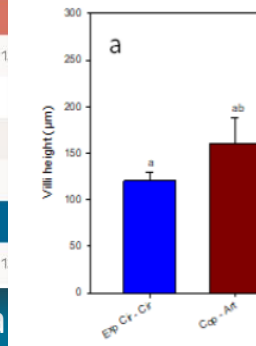
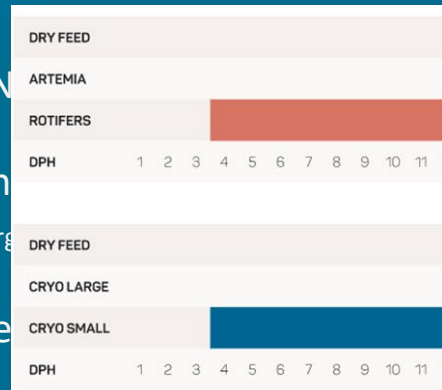
Improved gut health (Source: Sintef/Nofima)

Growth studies at hatcheries show longer survival using CryoPlankton (Source: Mowi and Tjeldberg)

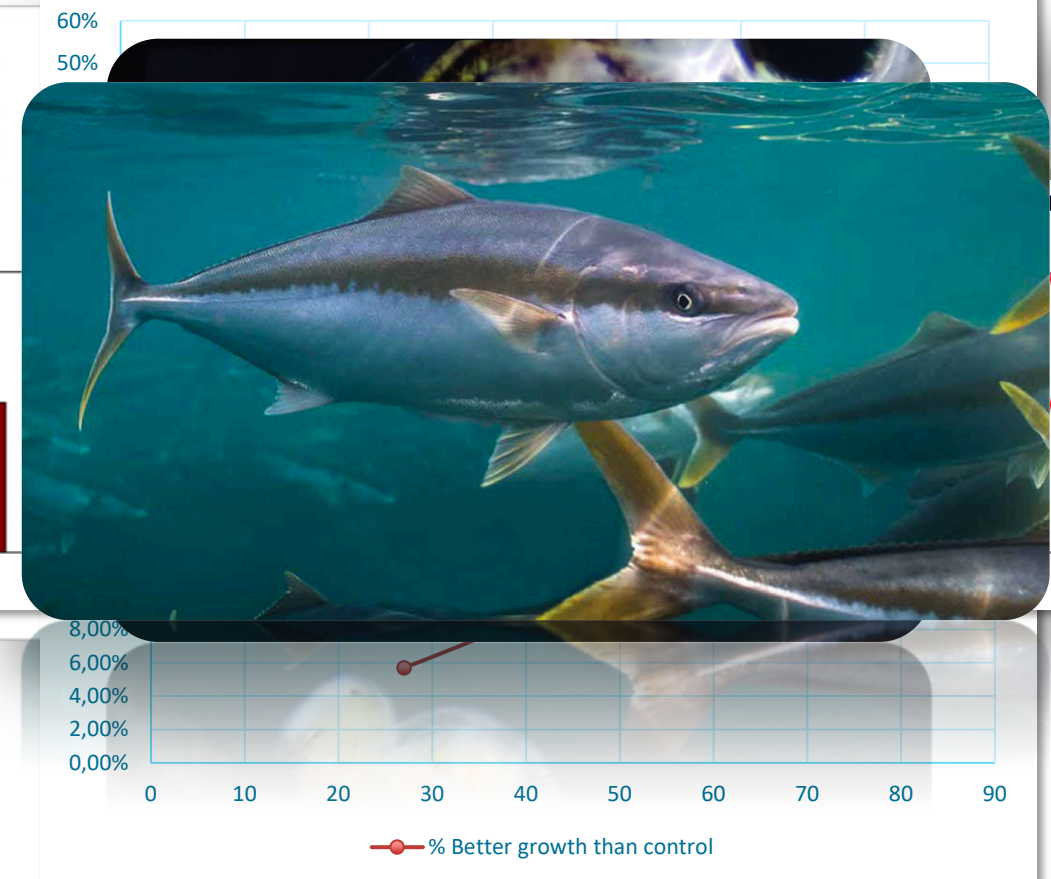
Faster growth rates on sea bass and sea bream

Cryo-L has successfully replaced rotifers and part of the artemia commercial protocols in yellowtail kingfish production

Successful trials on cod where CryoPlankton Small and Large replaced all rotifers and artemia until weaning. (Source: Mørkvedbukta)



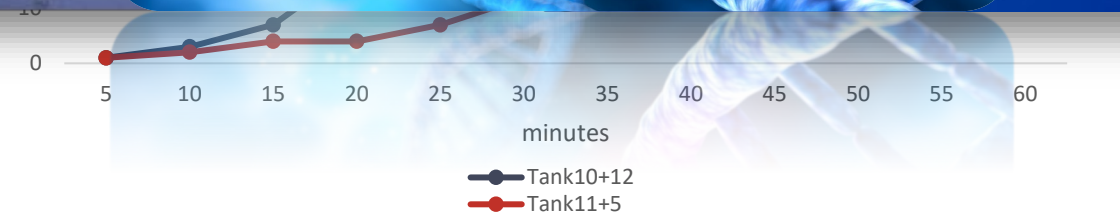
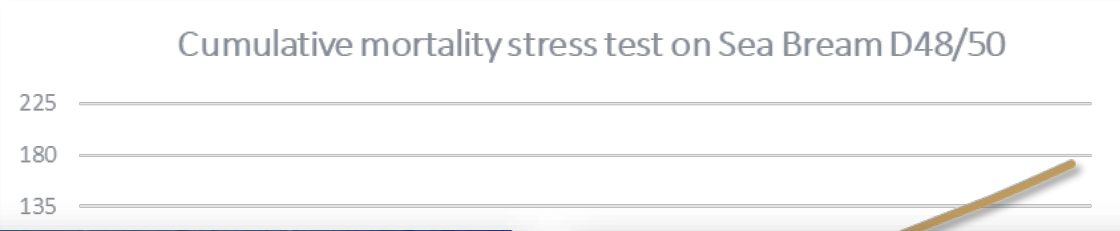
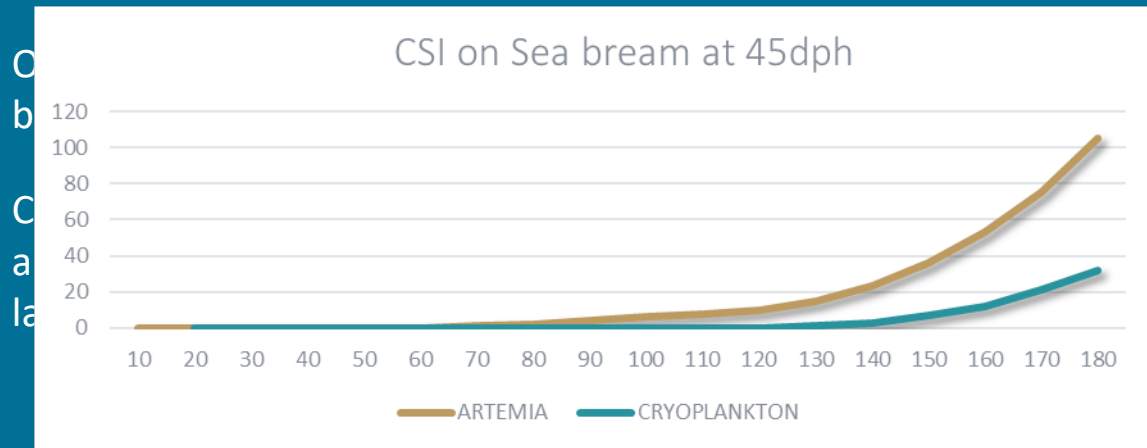
Sea bream % Better growth than control



EVIDENCE OF EFFICACY

Stress tests performed at hatcheries show increased stress tolerance in larvae fed CryoPlankton (Source: Mowi)

Stress tests on sea bass and sea bream always prove better stress resistance



EVIDENCE OF EFFICACY ON SHRIMP

Faster growth, better survival (2020)

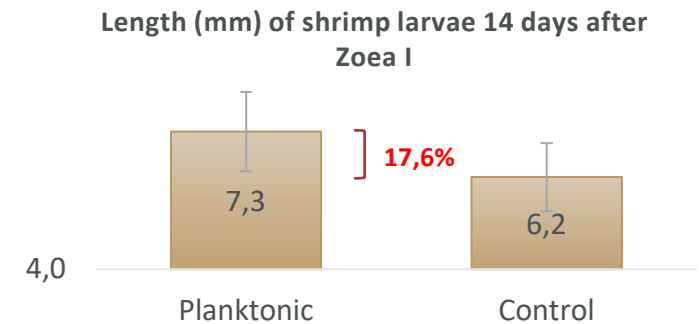
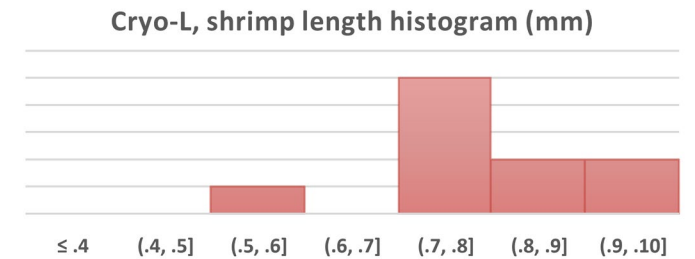
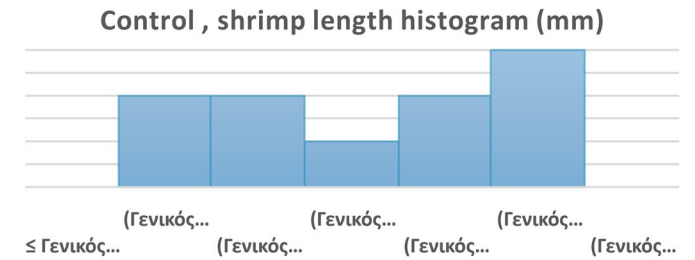
- To PL1 by one day
- PL 7-8, 18-23% larger, survival in PL13 85% vs 19%

Faster molting (2022)

- Larvae reached PL1 stage one day faster

Rearing protocol has been developed with the use of Plankton eggs and inert Cryo-L (2022)

- Reached PL1, 1,5days faster.
- Length at PL6, 17,6% longer



NEXT MILESTONES FOR PLANKTONIC

Plankton Eggs, 65µm

Cryo-S, 200µm

Cryo-L, 320µm

Copepods, 700µm



New product development – complete product portfolio



Intensive R&D activity



Expand production to meet increasing demand



Enter new markets – shrimp, SBs/SBr, small larvae



Support sustainable aquaculture





planktonic

