



THE FUTURE OF SHRIMP FARMING

MISSION STATEMENT

We farm premium quality shrimp locally with low environmental impact using state-of-the-art technology “Made in Germany”.

Our Pilot Farms

PROVEN OPERATIONS & SALES AS PIONEER IN EUROPE

Kiel, Germany

oceanloop
shrimp kiel



5 tons p.a.

- Total water volume: **200 m³**
- Daily water consumption: **15 m³**
- Number of Oceanloop: **1**
- Stocking volume per Oceanloop: **150 m³**
- Daily feeding: **25 kg**
- Batches farmed since 2016: **~100**

Munich, Germany

oceanloop
shrimp munich



20 tons p.a.

- Total water volume: **1.000 m³**
- Daily water consumption: **25 m³**
- Number of raceways: **8**
- Stocking volume per raceway: **88 m³**
- Daily feeding: **110 kg**
- Batches farmed since 2016 : **~300**

Our Philosophy

OCEANLOOP IS THE *BLUE* VERTICAL FARMING PIONEER

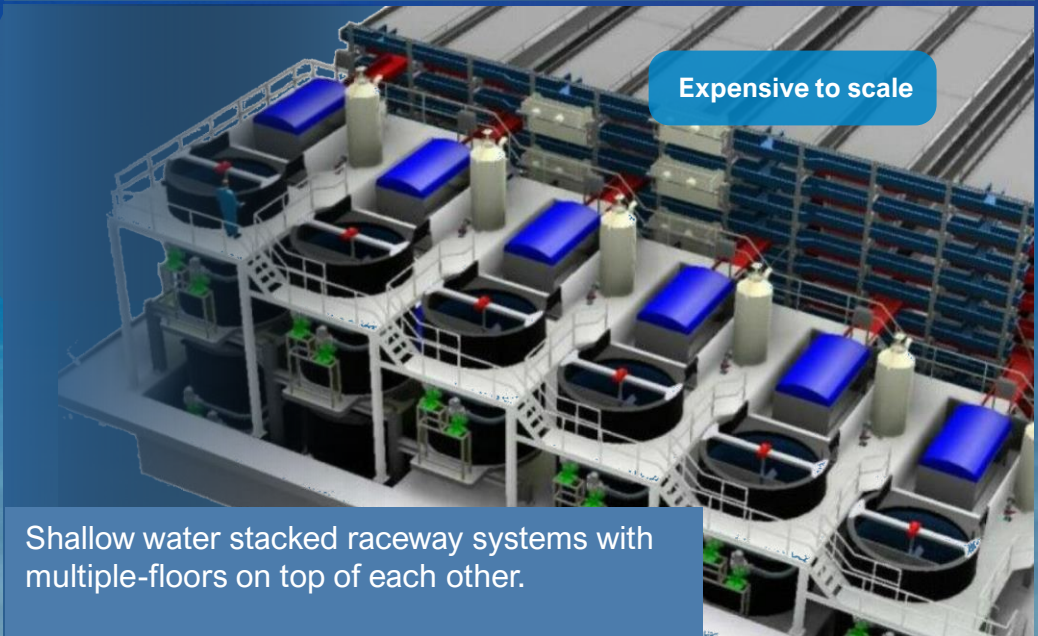
Blue Vertical Farming adds a new solution to the shrimp industry through digitalization, automatization and optimal land usage.

Vertical farming for vegetables & fruits	Company	Founded	Money raised	Vertical Farming for insects	Company	Founded	Money raised
 Worldwide investments, but tough to monetarize	AEROFARMS	2004	238m\$	 Worldwide investments	PROTIX	2009	126m\$
	inFarm	2013	604m\$		Ynsect	2011	580m\$
	Plenty	2014	941m\$		INNOVAFEED	2016	480m\$
	BOWERY	2015	626m\$				
	80 ACRES FARMS	2015	275m\$				

BLUE Vertical Farming for Shrimp



1st Generation RAS-Shrimp Farms

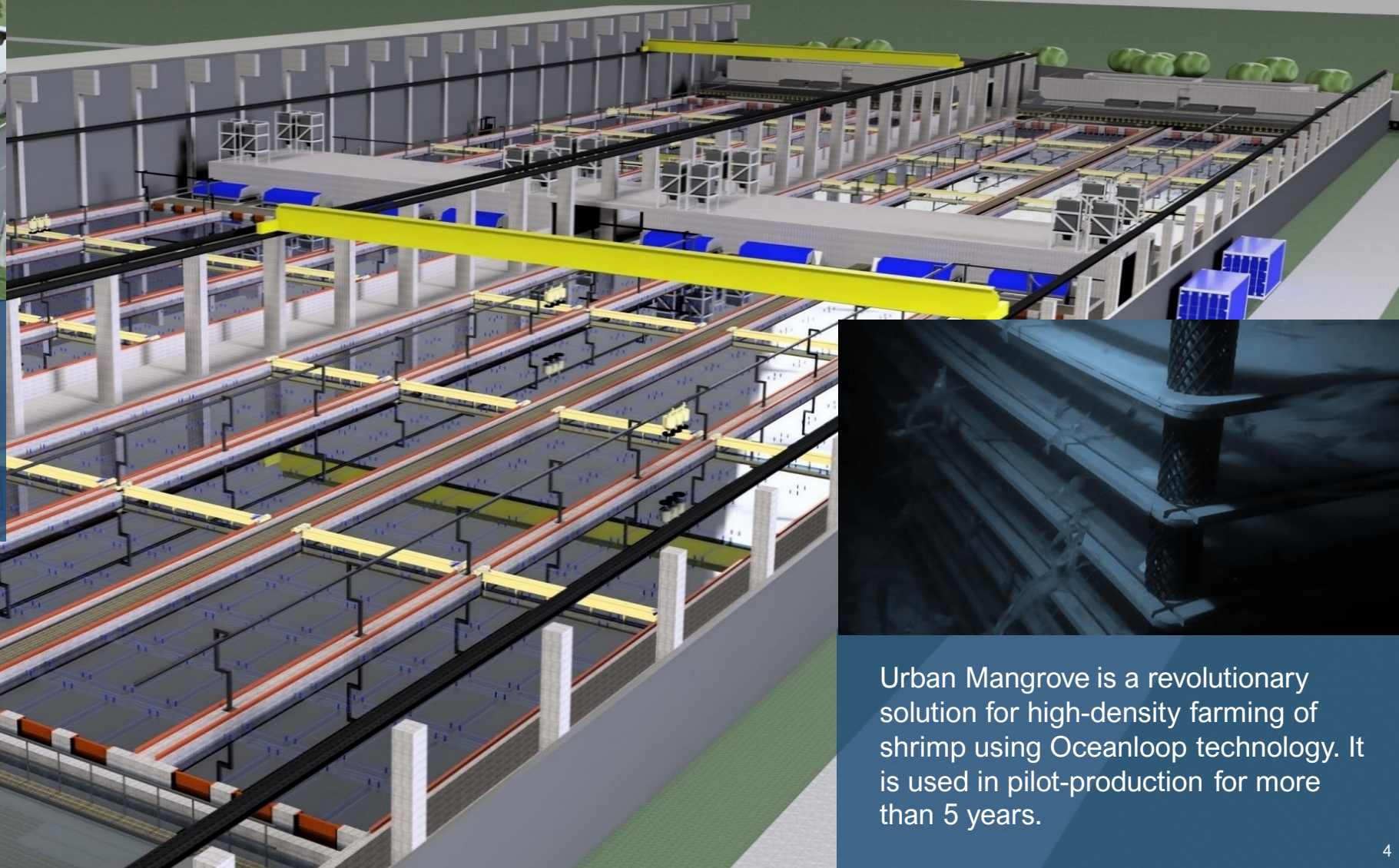


Our Technology

RAS-TECHNOLOGY “MADE IN GERMANY”



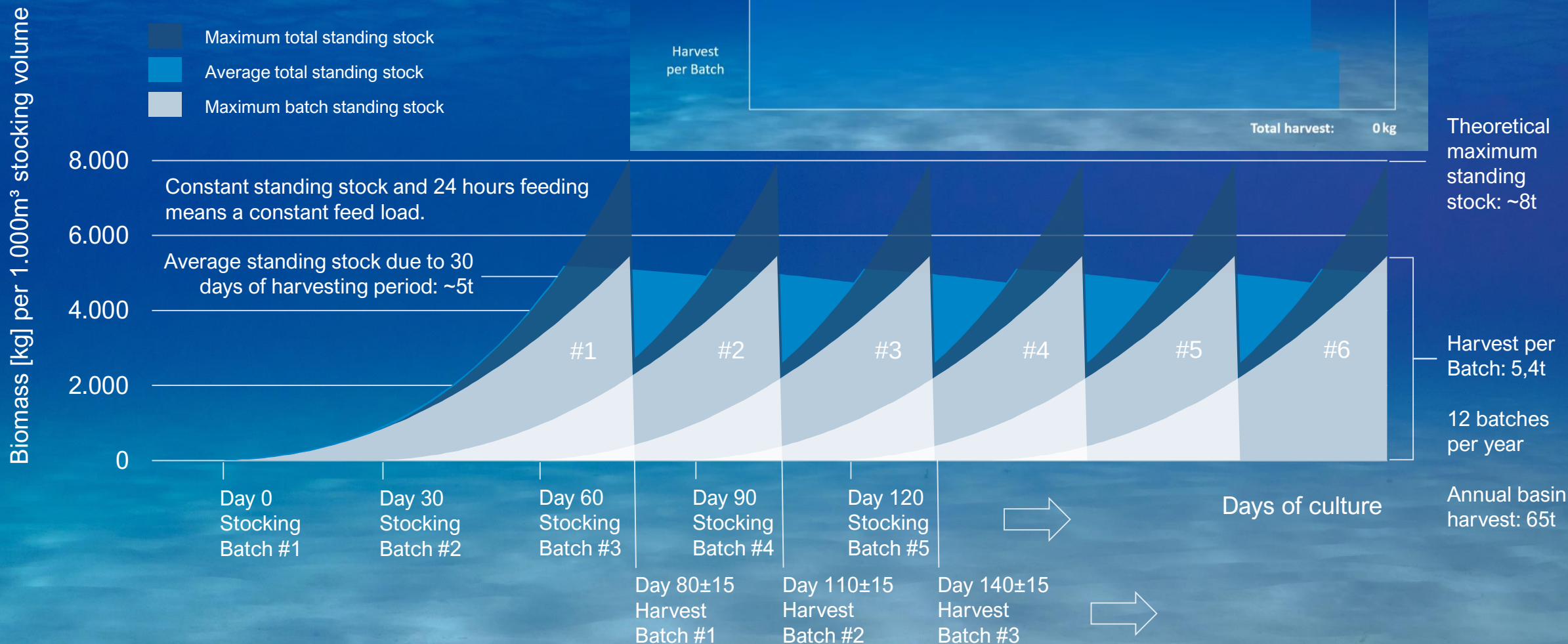
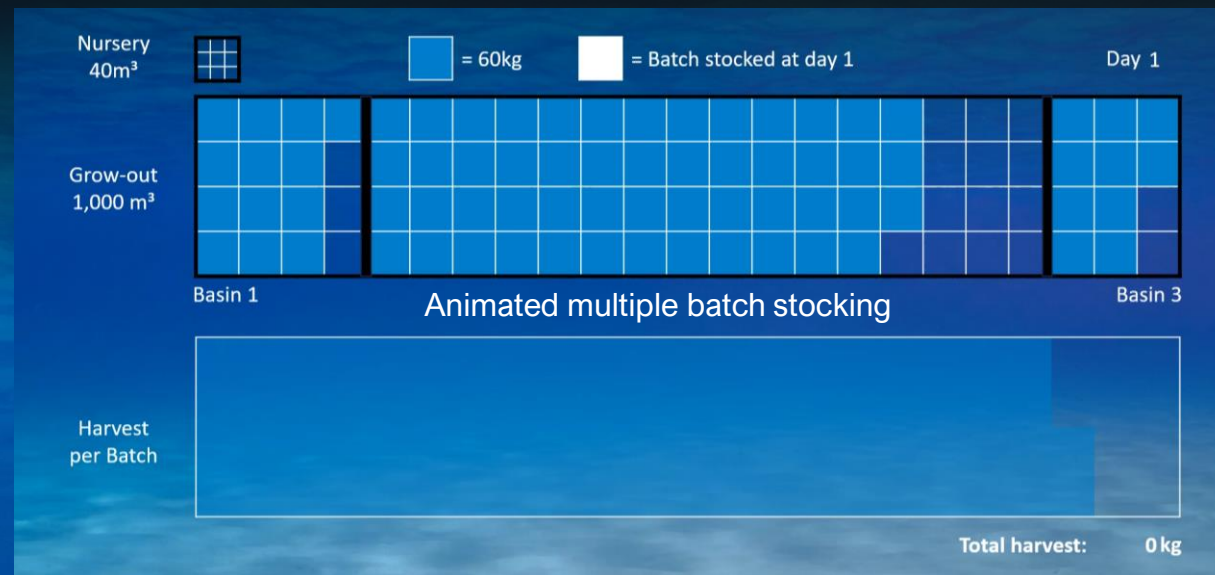
Oceanloop is a unique platform-technology for land-based farming of diverse seafood incl. shrimp, grouper, kingfish, seabass and seabream. It is proven in large scale-production and optimized since more than 10 years.



Urban Mangrove is a revolutionary solution for high-density farming of shrimp using Oceanloop technology. It is used in pilot-production for more than 5 years.

MULTIPLE BATCH STOCKING

Annual productivity **65 kg per m³**

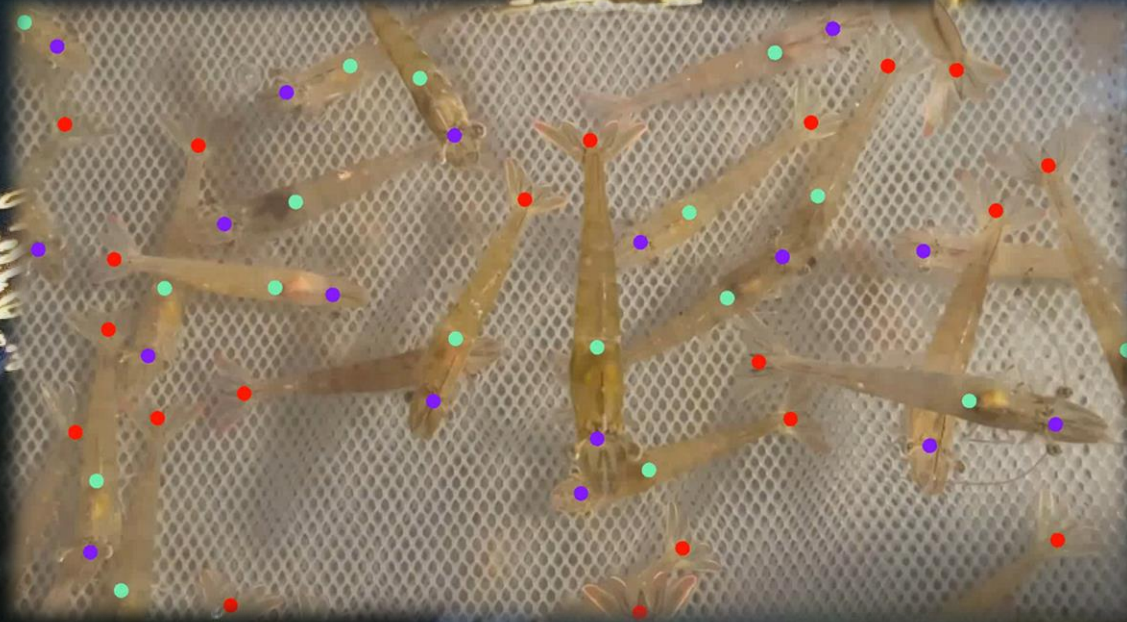


Our Software Development

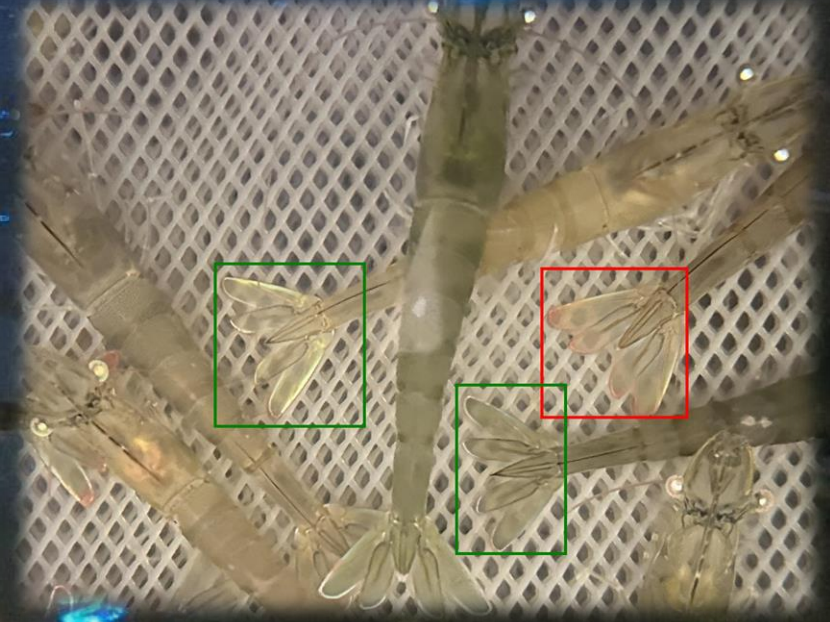
COMPUTER VISION TO IMPROVE SHRIMP FARMING



Individual weight



Shrimp counting



Stress detection



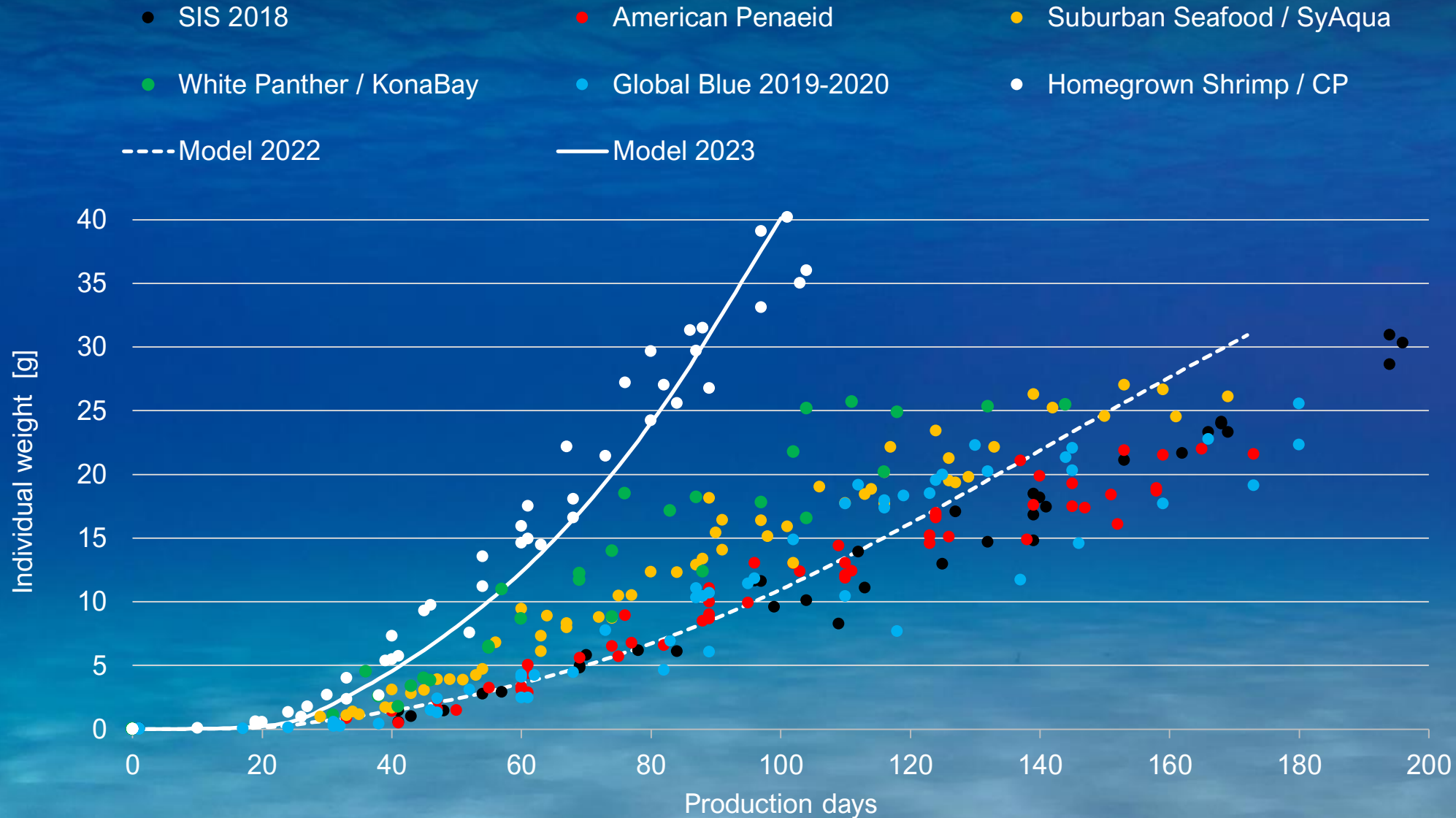
WATER QUALITY AND STABILITY IS THE KEY TO SUCCESS

Parameter	Unit	Data interval	Scientific benchmark	Oceanloop benchmark	Oceanloop Kiel R&D	Measured and <u>relevant</u> ion composition at Oceanloop	
Temperature	°C	< hour	26-30	29-31	29.5-31.0	Chloride	Chromium
Oxygen	%	< hour	80-100	90-100	87-113	Sodium	Cobalt
Salinity	g/L	< hour	10-25	15-20 ^a	14.6-22.7 ^a	Magnesium	Iron
Total ammonia nitrogen (TAN)	mg N/L	< weekly	<1.0	<0.5	<0,12	Sulphur	Copper
Free ammonia nitrogen (FAN)	mg N/L	< weekly	<0.03	<0.01	<0,004	Calcium	Selenium
Nitrite	mg N/L	< weekly	<0.3	<0,1	<0,022	Potassium	Silver
pH		< hour	7.0 – 8.3	7.4 – 7.6	7.2 – 7.8	Bromine	Vanadium
Alkalinity	mg CaCO ₃ /L	< weekly	>100	100-140	107-169	Strontium	Zinc
	°dH		>5.6	5.6-7.9	5.6-9.5	Boron	Tin
Carbon dioxide	mg/L	< weekly	<7	<5	1.6-7.9	Fluoride	Aluminum
Nitrate nitrogen	mg/L	< weekly	n.d.	<50	6.1-28.3	Lithium	Antimony
						Silicon	Bismuth
						Iodine	Lead
						Barium	Cadmium
						Molybdenum	Lanthanum
						Nickel	Thallium
						Manganese	Titanium
						Arsenic	Tungsten
						Beryllium	Mercury
						Phosphorus	

^a Natural seawater with slow fluctuations in salinity, which are accepted to a certain degree

Our Production Efficiency

RAS FARMING UNLOCKS THE FULL GROWTH POTENTIAL





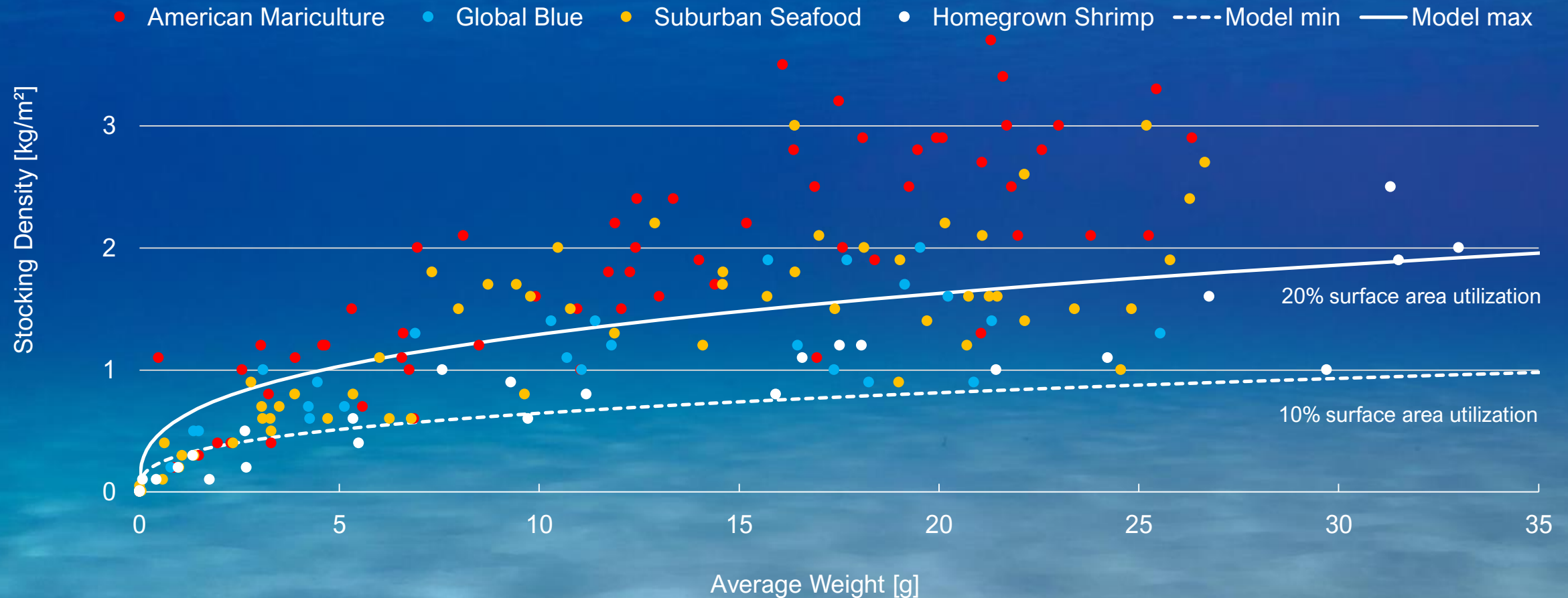
WHAT IS THE DENSITY IN KG PER M³ IN THIS PICTURE?

Shrimp weight 4-5g

3,0 kg / m² 633 ind. / m²

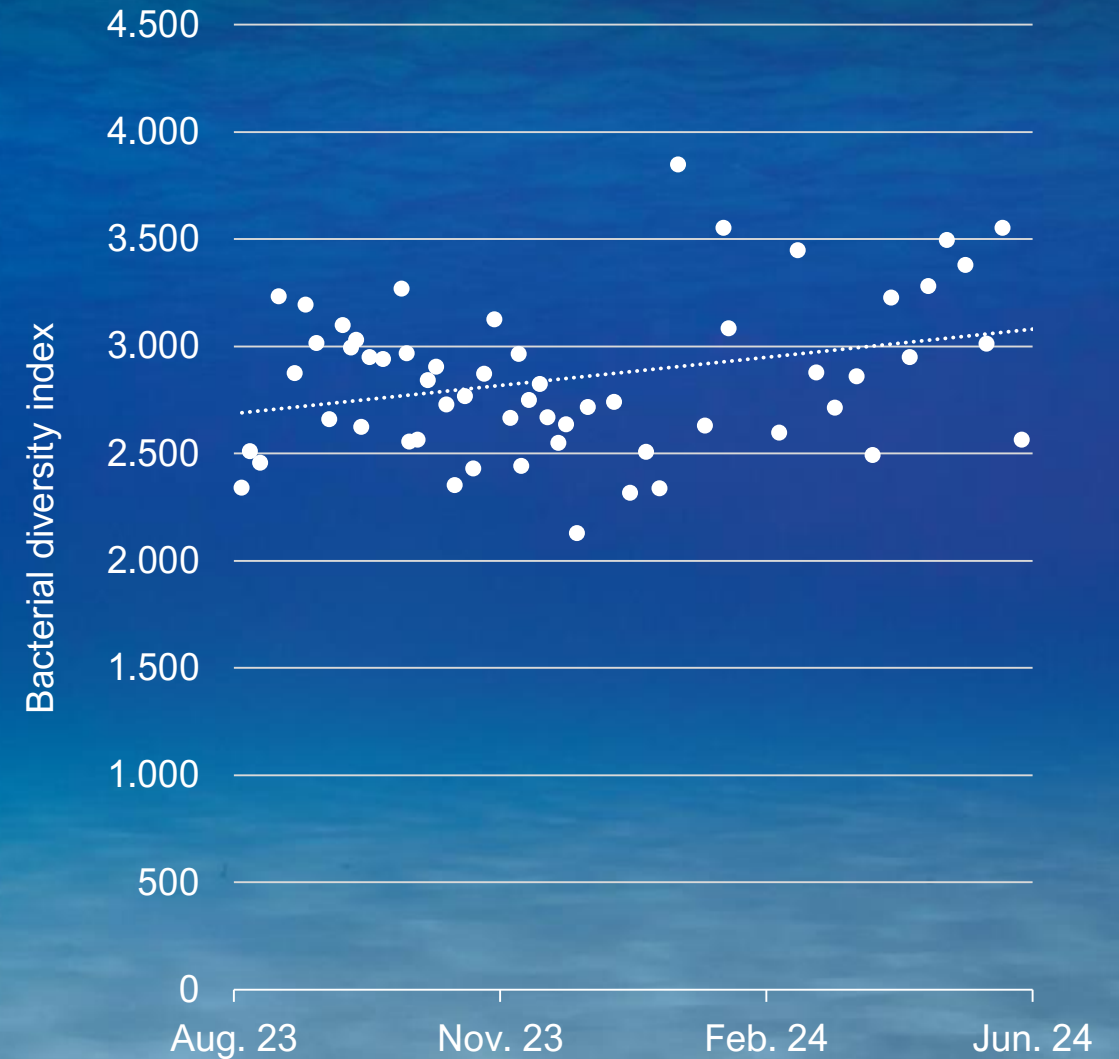
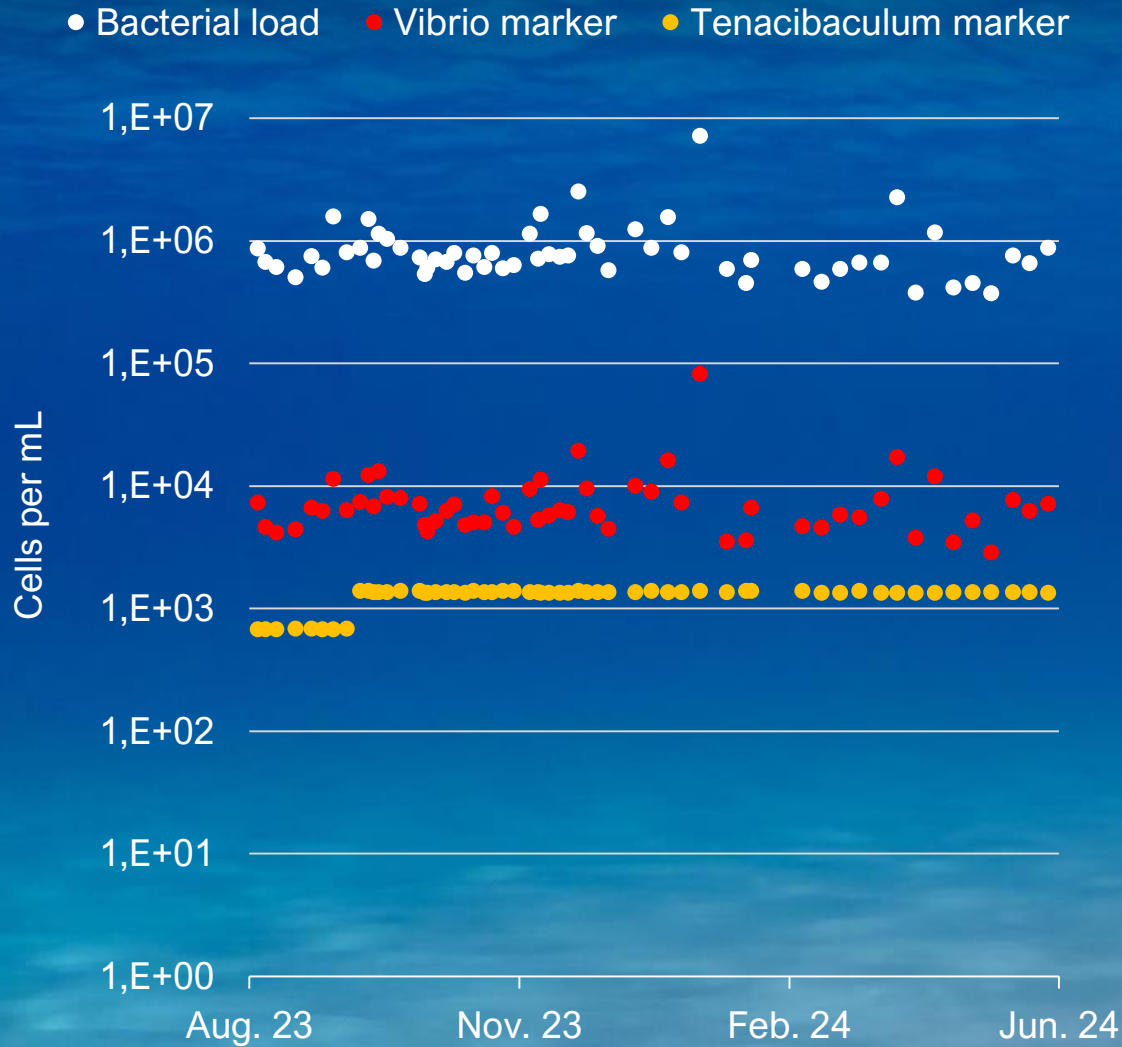
65% surface area utilization

DENSITY CONTROL IS NEEDED TO IMPROVE FARMING EFFICIENCY



Our Production Efficiency

MICROBIOM SCREENING TO ASSIST FARM MANAGEMENT by Kytos, Belgium



PERFORMANCE FOLLOWS PLAN BUT HUGE BATCH VARIABILITY

Data 2023 	Plan	Average performance		2023 0121	2023 0224	2023 0316	2023 0505	2023 0608	2023 0721	2023 0914	2023 0928	2023 1019	2023 1214
Batch performance*	100%	99%		102%	101%	125%	146%	59%	127%	91%	68%	76%	94%
Harvest per Batch in kg	406	408	101%	425	423	562	633	204	542	357	260	288	387
Survival rate in %	54%	52%	97%	56%	55%	66%	72%	27%	67%	52%	35%	37%	56%
Feed conversion rate	1,3	1,4	90%	1,4	1,4	1,8	1,2	1,4	1,3	1,3	1,5	1,4	1,4
Weekly growth to 30g in g	2,3	2,4	106%	2,5	2,4	2,2	2,6	2,5	2,4	2,5	2,7	2,4	2,2
Average harvest size in g	30	32	105%	30	31	34	35	37	32	27	30	31	28
First harvest in days	75	78	97%	72	73	90	80	85	80	70	74	81	70
Weight at first harvest in g	25	25	101%	24	21	28	30	30	24	25	25	25	22
Final harvest in days	105	109	96%	109	110	127	119	109	124	88	99	104	104
Weight at final harvest in g	35	35	100%	36	35	35	39	40	38	30	30	37	32

* Batch performance: weighted performance level based on harvest (80%) and feed conversion (20%)

Our Environmental Footprint

FARMING EFFICIENCY IS THE KEY TO SUSTAINABILITY

SUSTAINABILITY HIGHLIGHTS*



49% saving in
land use



96% saving in used
water resources



77% saving in
global warming



100% renewable
energy

	<i>per ton shrimp</i>	Oceanloop	Pond Farming ¹
Global warming potential	ton CO ₂	3.8**	2.8 - 48 ²
Total land use	ha	0.25	0.48
Feed	ha	0.24	0.30
Farming	ha	0.001	0.14
Support	ha	0.002	0.03
Total water use	m ³	2,866	76,817
Feed and others	m ³	2,803	3,457
Water exchange	m ³	63	73,360

* per ton shrimp Oceanloop Europe vs. pond farming ¹

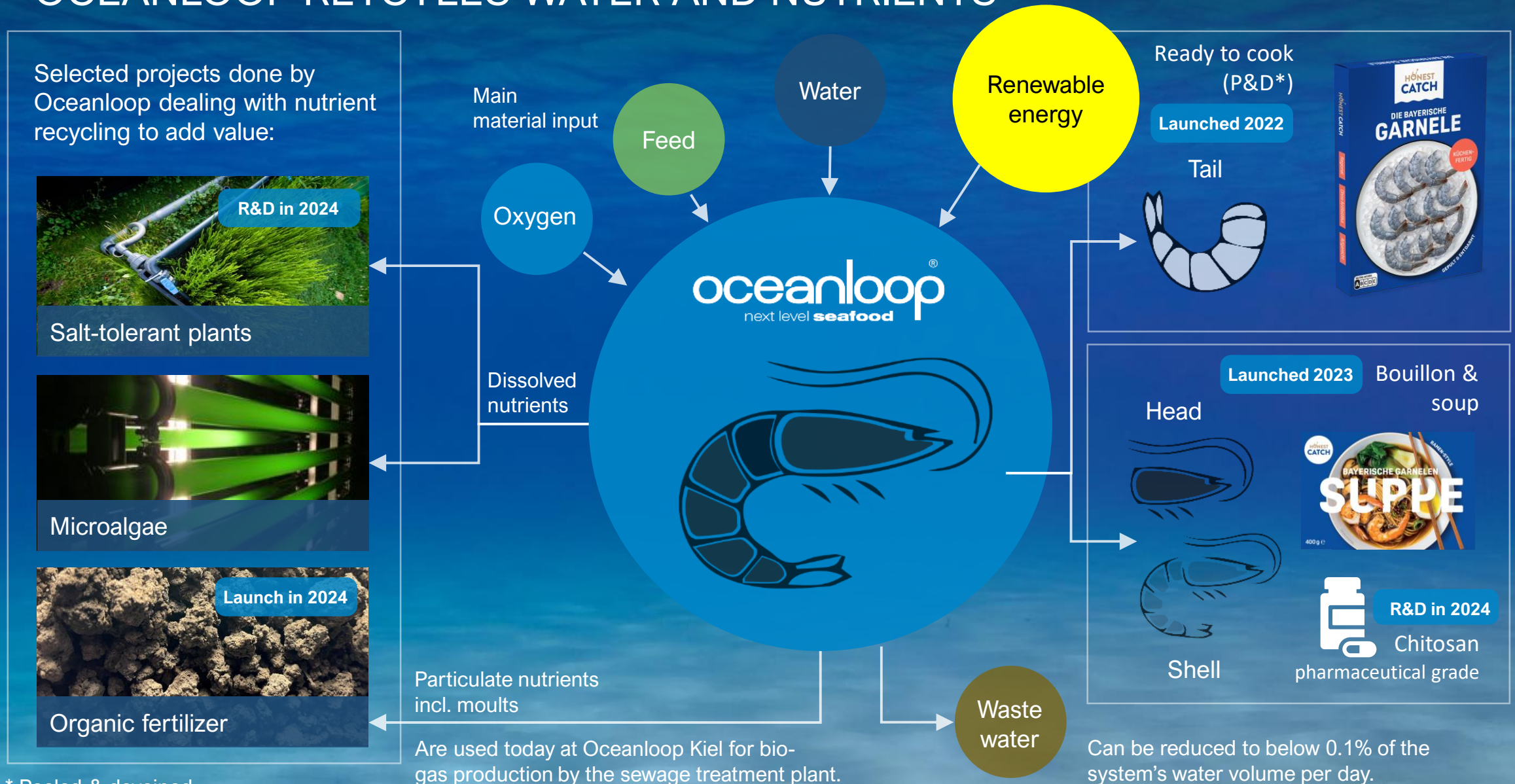
** preliminary „Cradle-to-gate“ data without infrastructure and capital goods

¹ Resource use in whiteleg shrimp *Litopenaeus vannamei* farming in Ecuador. <https://doi.org/10.1111/jwas.12818>

² Literature research on shrimp farming LCA:-GWP: 2.75 - 48.0 kg CO₂e (median: 16.5 kg CO₂e)

Our Circular Economy Actions

OCEANLOOP RECYCLES WATER AND NUTRIENTS



* Peeled & deveined

oceanloop[®]
next level **seafood**

Talk to us:

Dr. Bert Wecker: b.wecker@oceanloop.com

Go to [Oceanloop Press Center](#) to read all articles.

the
fish site

ucn undercurrentnews
SEAFOOD BUSINESS NEWS AND DATA

 **IntraFish**

 **RASTECH**

 **SeafoodSource**

Fischmagazin

