

New



AMBERSEA



by



CHALLENGES

Demand for (sea)food higher than Supply

Fresh water demand to grow food

Energy and Climate Change

Ocean impact by human activities

Limited agricultural space

2 ZERO HUNGER



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



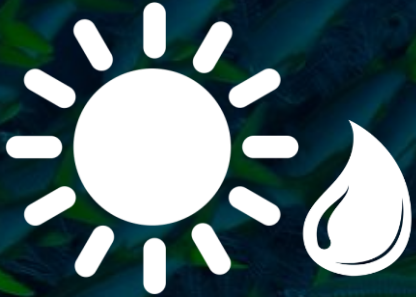
14 LIFE BELOW WATER



15 LIFE ON LAND



SOLUTION



Use Abundant
Natural Resources
on currently
Unused Land



Innovative process to
synergistically produce
Food + Water + Energy



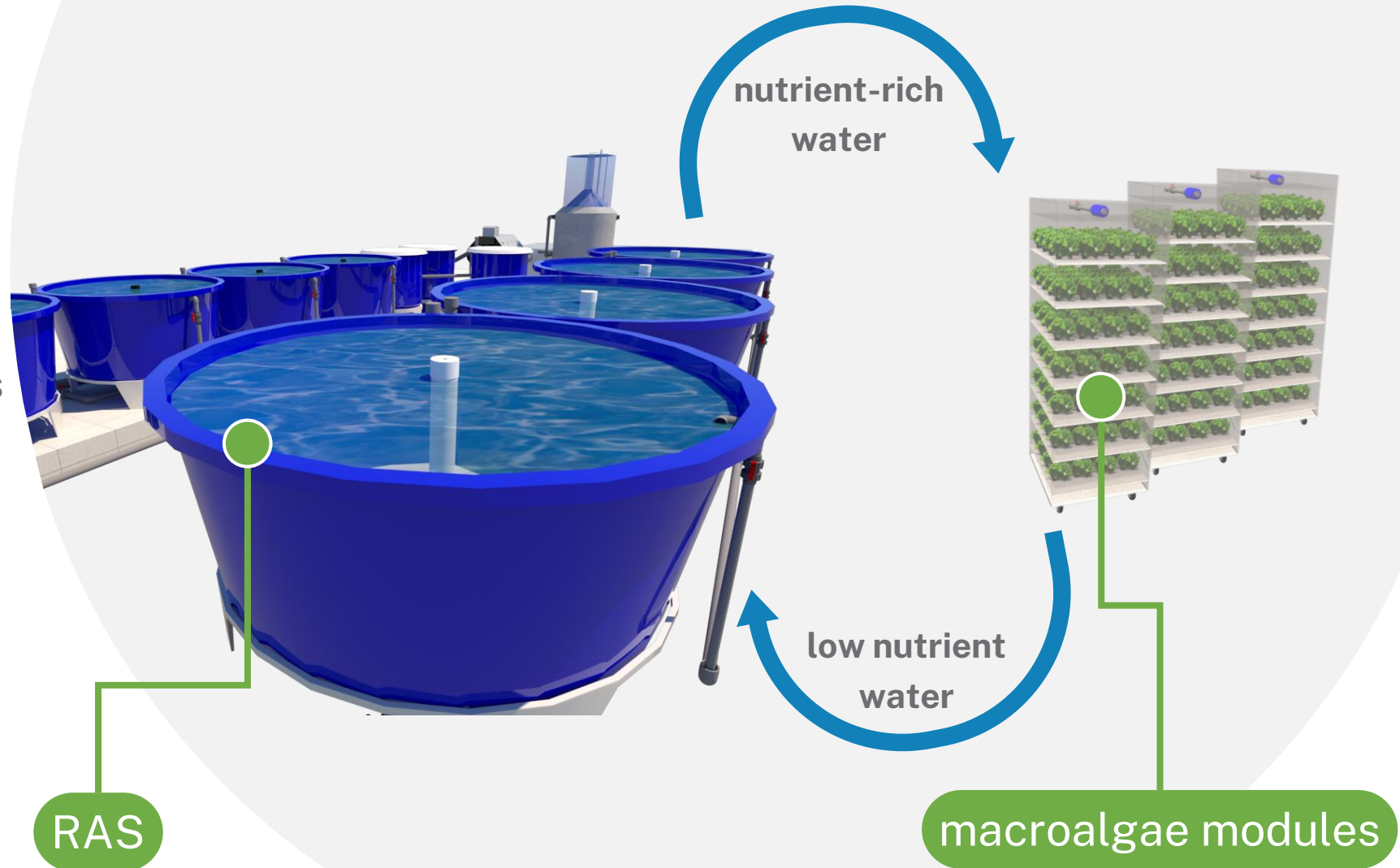
Zero Waste
& Minimum
Production Costs

MULTI-CIRCULAR TECHNOLOGY

1. SEAWATER AQUAPONICS

(symbiotic cycle between G. Amberjack and Algae)

2. Convert solid organic waste from RAS into liquid nutrients
3. Refrigeration, evaporation and water recovery
4. Sequester CO₂ emissions



MULTI-CIRCULAR TECHNOLOGY

1. SEAWATER AQUAPONICS

2. **Convert solid organic waste from RAS into liquid nutrients increasing algae productivity (through aerobic biodigester)**

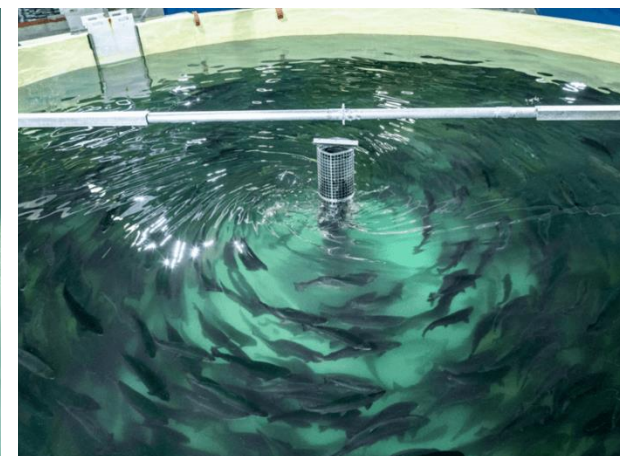
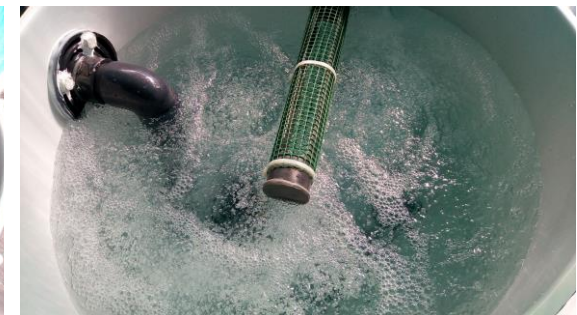
3. Refrigeration, evaporation and water recovery

4. Sequester CO₂ emissions



KNOW-HOW

RAS, Aquaponics and Water treatment



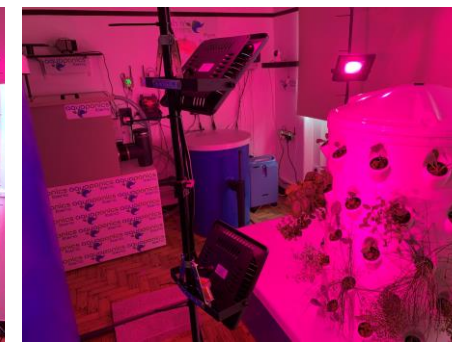
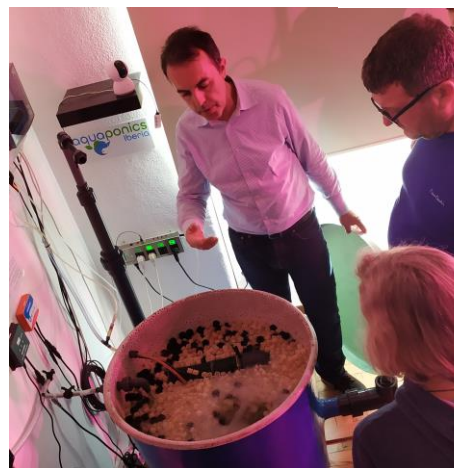
KNOW-HOW

Recognized as an **R&D** entity by
ANI, in the technical-scientific domains:

Agri-food – Healthy and sustainable food

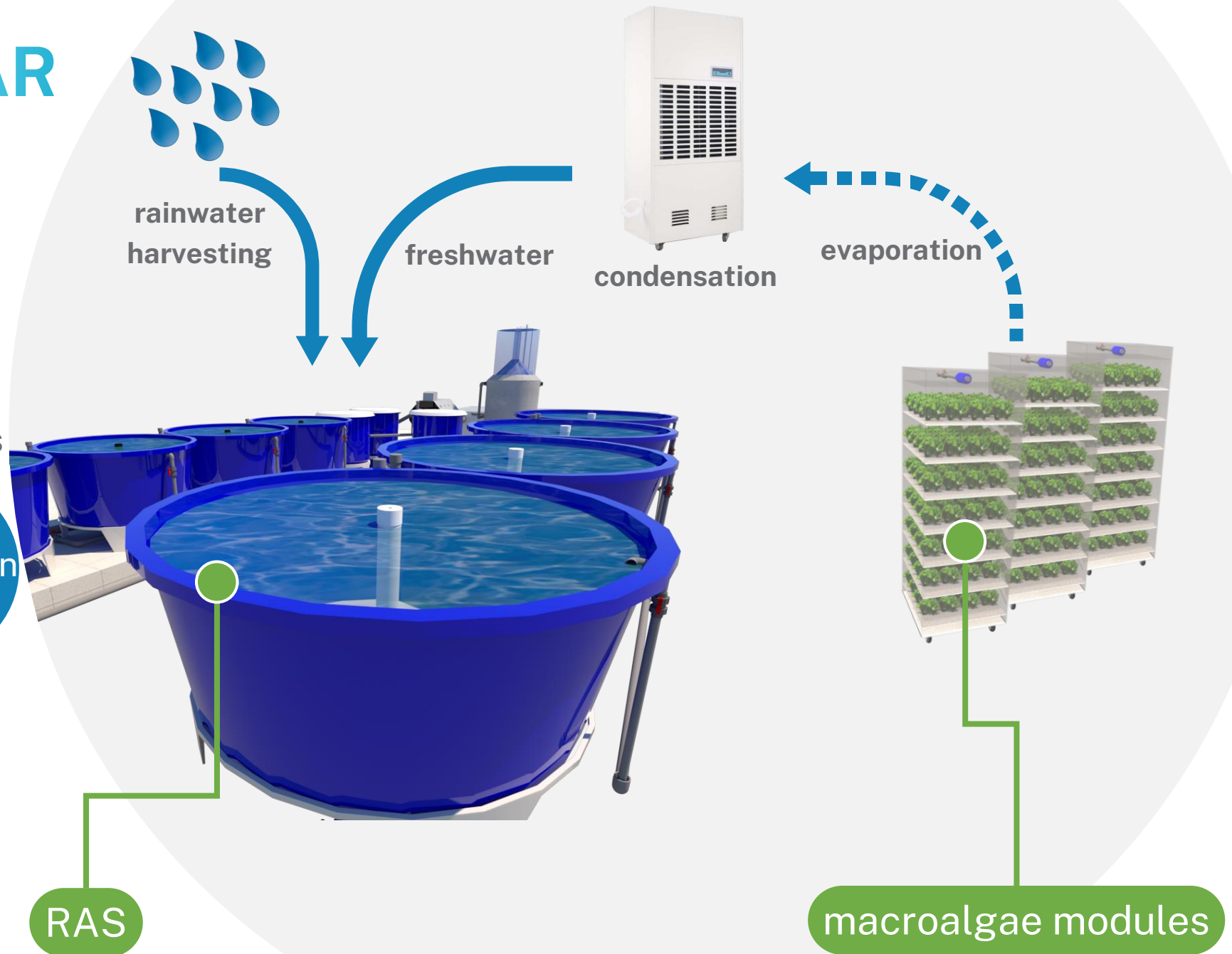
Water and Environment – Waste reduction, management,
treatment and recovery

Agri-food – Waste treatment and reuse



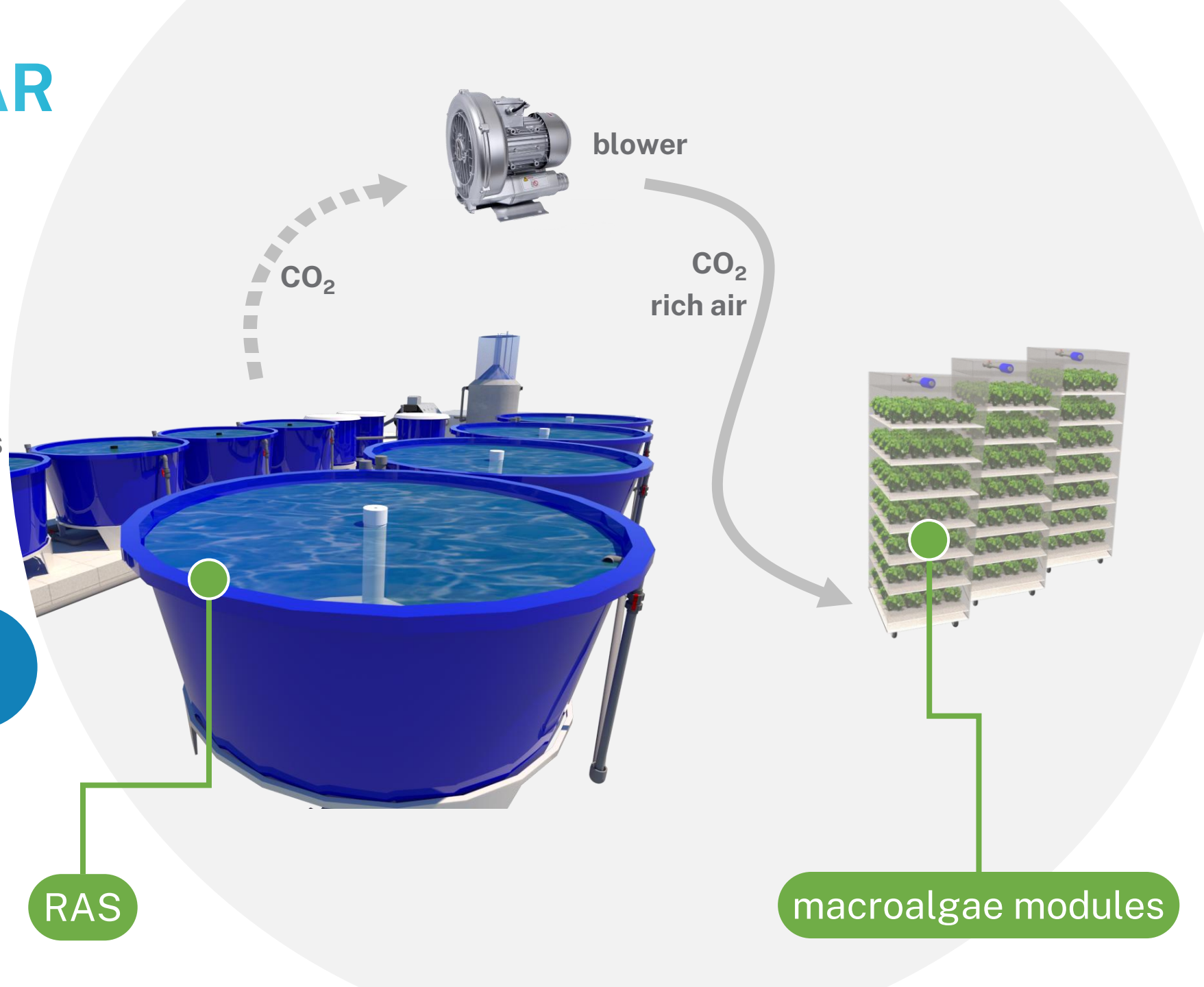
MULTI-CIRCULAR TECHNOLOGY

1. SEAWATER AQUAPONICS
2. Convert solid organic waste from RAS into liquid nutrients
3. Refrigeration, evaporation and water recovery in sorption process by condensation
4. Sequester CO₂ emissions



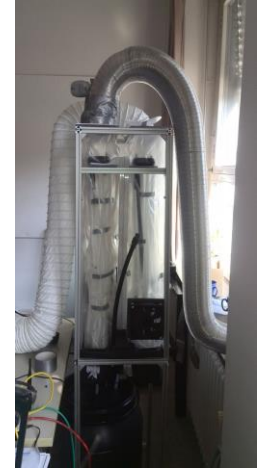
MULTI-CIRCULAR TECHNOLOGY

1. SEAWATER AQUAPONICS
2. Convert solid organic waste from RAS into liquid nutrients
3. Refrigeration, evaporation and water recovery
4. **Sequester CO₂ emissions / CO₂-fertilization of algae**



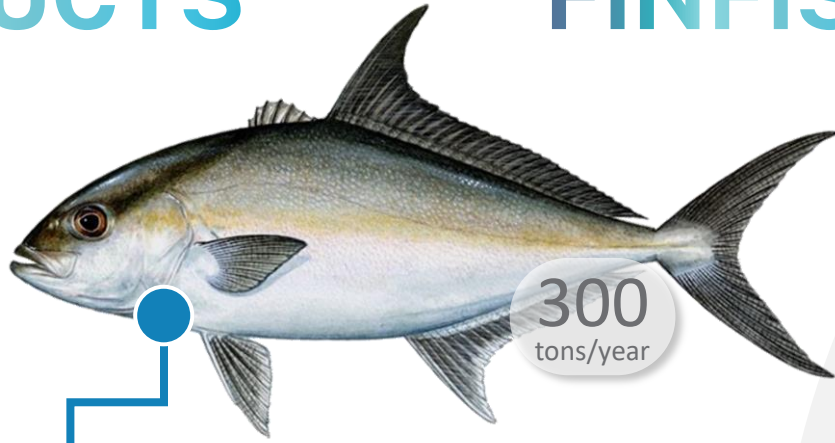
KNOW-HOW

DEHUMIDIFICATION OF AIR + + VERTICAL MACROALGAE GROWTH



PRODUCTS

FINFISH



Greater Amberjack (*Seriola dumerili*)

From fry to 3 kg in 1 year

FCR < 1.6

B2B price = 11 €/kg

EU production* = 1,831 tons
Only 25% from aquaculture
(around 1% from RAS)



(*) FAO, year 2020
Seriola dumerili + *Seriola lalandi*

Target markets



● Sushi restaurants and hotels

● Food retailers (demanding certified seafood)



● Direct to home delivery and workplaces (fillets)



PRODUCTS

MACROALGAE

Ulva (sea lettuce)

Nori seaweed



940
tons/year

Fast growth
(>+15% daily biomass)

B2B seaweed price = 10 €/kg

1.25 billion € EU market

Harvesting from the wild
still represents 98% of total
algae production volume

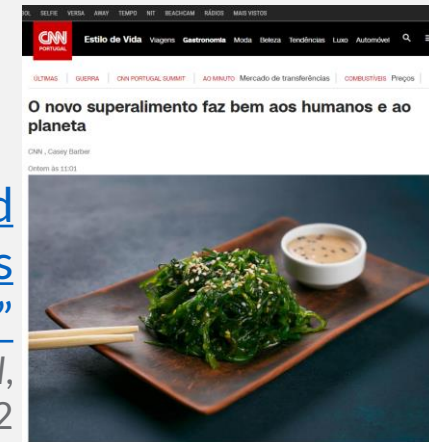
Giant growth forecast for
the European market

Sources: Eurostat, EUMOFA and FAO



[“Marine agriculture will bring seaweed to Europeans' meals”](#),
published in *Público*, 25th June 2022

[“The new superfood is good for humans and the planet”](#)
published in *CNN Portugal*,
24th July 2022

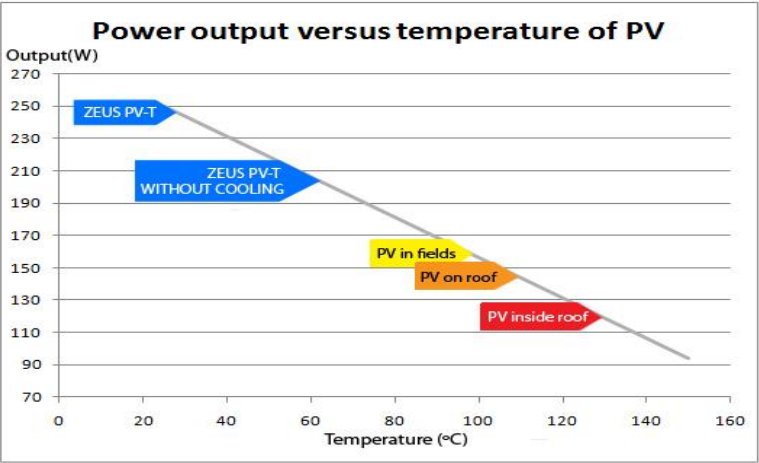


BY-PRODUCTS

Fresh WATER



19.5
million L/year



Cooling ENERGY

CO₂ CAPTURE



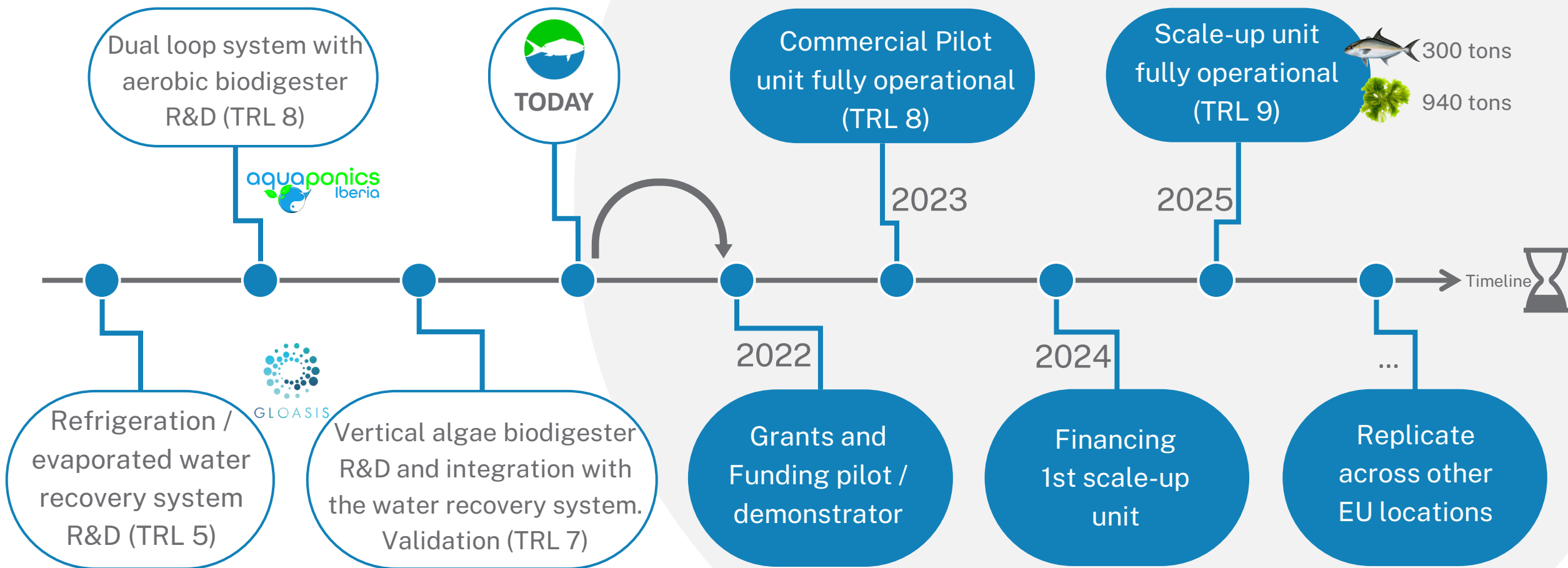
1,300 tons/year
Emissions Trading System

Organic COMPOST



~200
tons/year
for organic
agriculture

ROADMAP TO THE INDUSTRIALIZATION OF AMBERSEA



PILOT UNIT

DEMONSTRATOR

Small-scale
commercial unit

650 square meters

Warehouse

(RAS, storage and logistics)

Greenhouse

(algae cultivation)

Work also as a RAS
IMTA training center



PILOT UNIT

Investment = 560 k €*

Cruise year total revenues:

> 257 k €

Payback period: 6 years

EBITDA-To-Sales Ratio = 32%**

Net Profit on Sales = 9%**

ROI = 5%**

* Includes Working Capital

** Annual average of 5 years from the 2nd year of the project.



DEMONSTRATOR

Annual production capacity

 5.7 tons

 19 tons



PILOT UNIT

On own land **5 km**
from the coastline

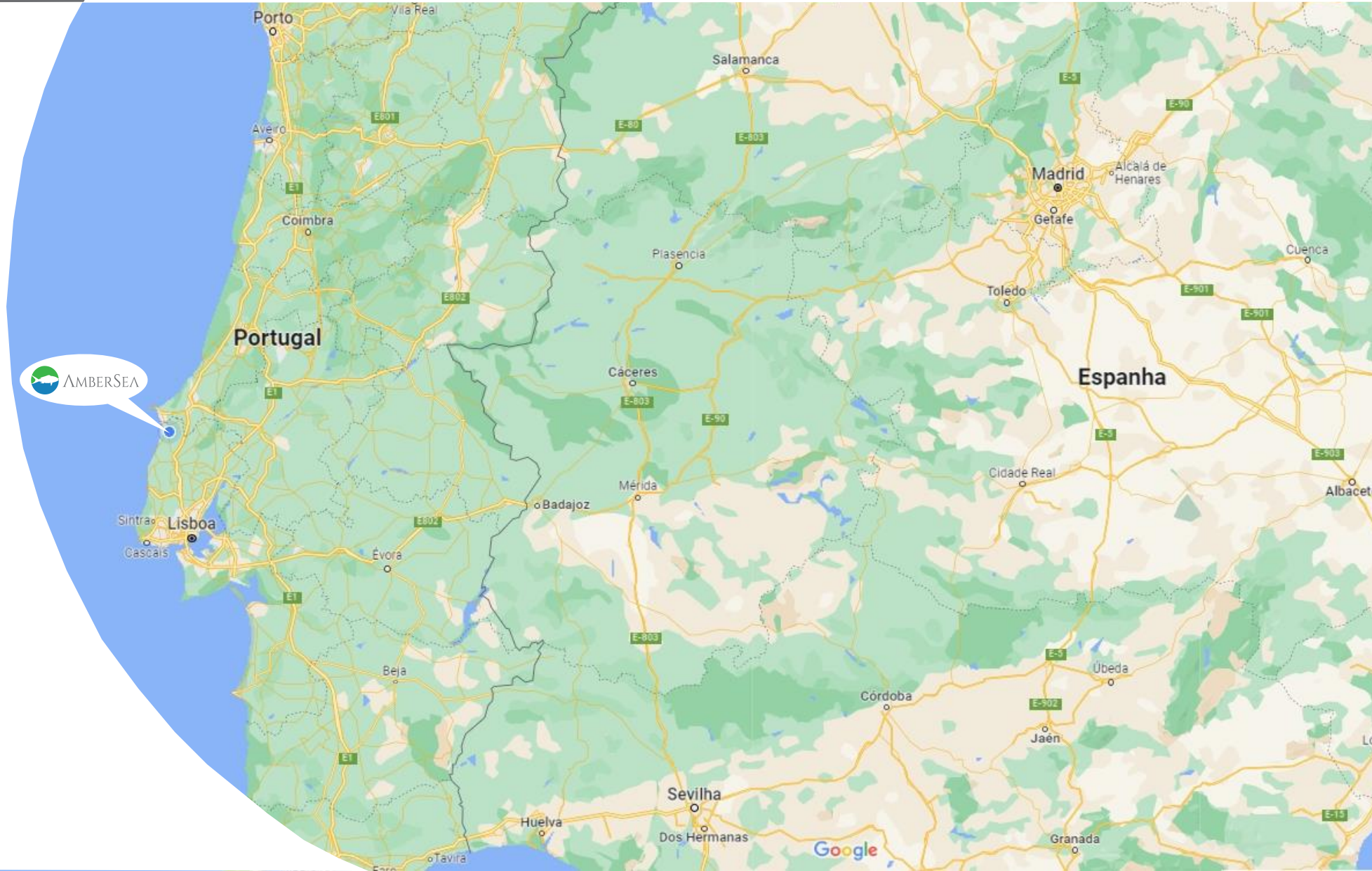
20 km from Peniche
(fish processing and
conservation industry)

60 km (45 min.)
from Lisbon

Easy access to seawater

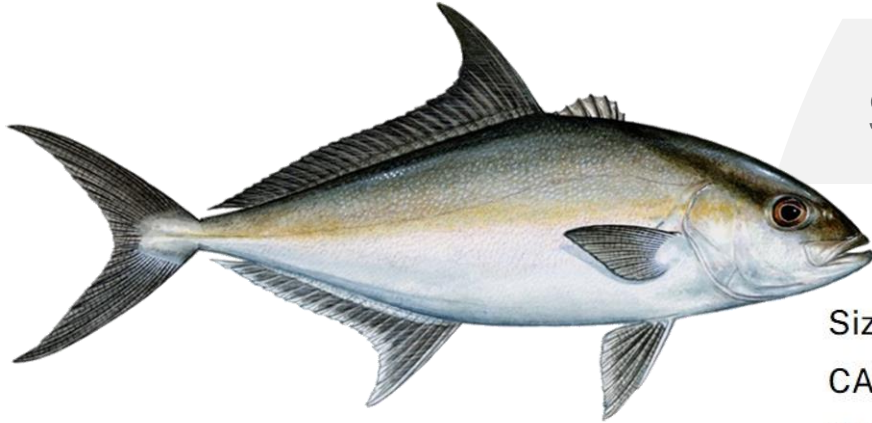


LOCATION



INVESTMENT IN SUSTAINABLE AQUACULTURE

SEAWATER SUSTAINABLE SEAFOOD FACTORIES



Size

CAPEX

OPEX Year #1

FINANCING DEMAND

Revenues per Year *

Net Profit per Year *

Net Profit on Sales *

ROI *

Payback period

FTE

ANNUAL
PRODUCTION

Fresh finfish

Organic fresh seaweed

Volume of water recovery

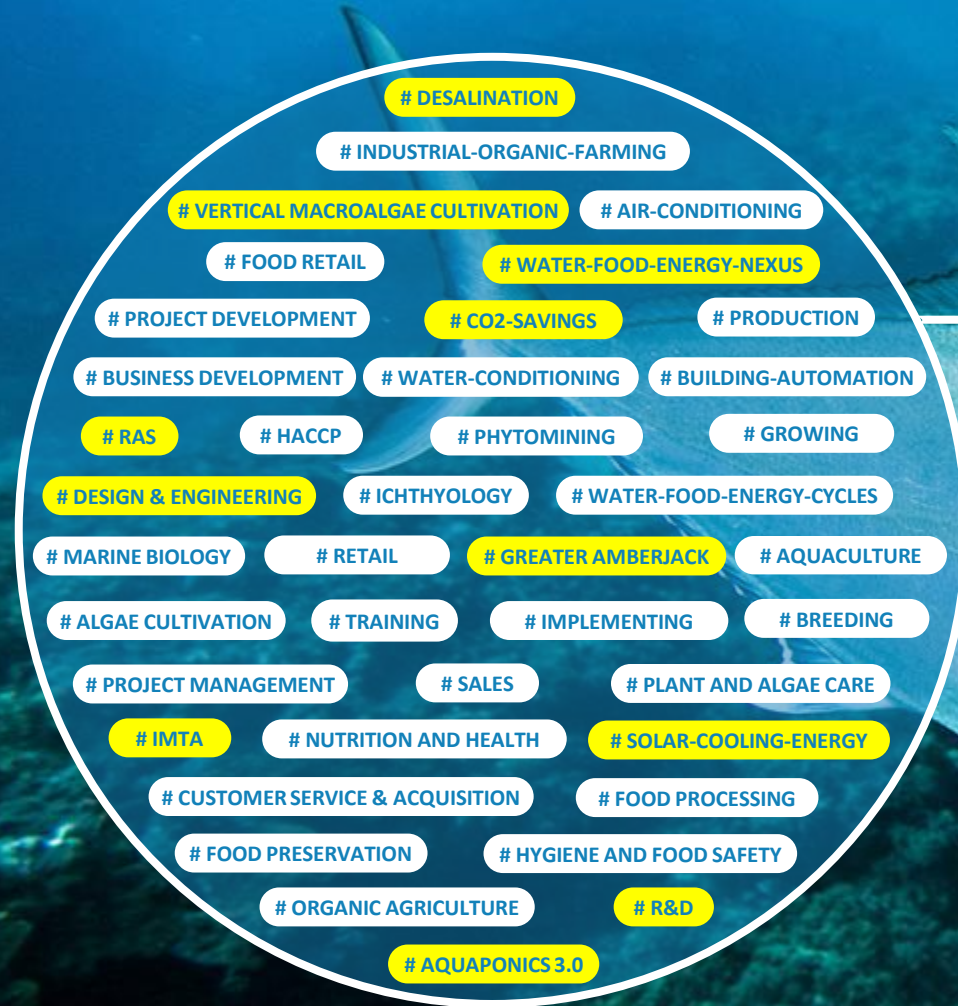
CO₂ emissions reduction

DEMONSTRATOR	SERIES A (1 FULL SCALE UNIT)	SCALE UP (5 UNITS)
650 m ²	1.85 hectares	5 x 1.85 hectares
539 000 €	14 500 000 €	72 500 000 €
132 511 €	2 115 514 €	10 222 800 €
560 000 €	15 200 000 €	76 000 000 €
283 802 €	14 736 859 €	73 684 295 €
24 909 €	7 288 700 €	36 768 025 €
9%	49%	50%
5%	50%	51%
6 years	2 years	2 years
3	31	150
6 tons	300 tons	1 500 tons
19 tons	940 tons	4 700 tons
180 000 liter	19 500 000 liter	97 500 000 liter
28 tons	1 400 tons	6 900 tons

* Considering revenues only from finfish and seaweed.
5-year annual average from the 2nd year onwards.

OUR CORE TEAM

Participants in Climate-KIC 2017, EIT Food FAN Bilbao 2019, BlueInvest Readiness Assistance 2020, EIT Innwise Scale Water Scarcity 2022



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HEALTHY, SUSTAINABLE AND DELICIOUS SEAFOOD

THANK YOU!



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Other partners and supporters

