Sustainable Blue Economy Partnership

Co-funded by the European Union

BLUEBOOST

Culture of a wide range of low trophic species to boost sustainable production of blue food and reduce environmental footprint

N. Duncan, S. Carboni, F. Ziegler, E. Fatsini, R. Quintã, R. Panicz,

R. Vieira Rodrigues, F. Capoccioni, C. Magnotti, X. Irz.

neil.duncan@irta.cat

Strategic guidelines for sustainable and competitive EU aquaculture

European Commission

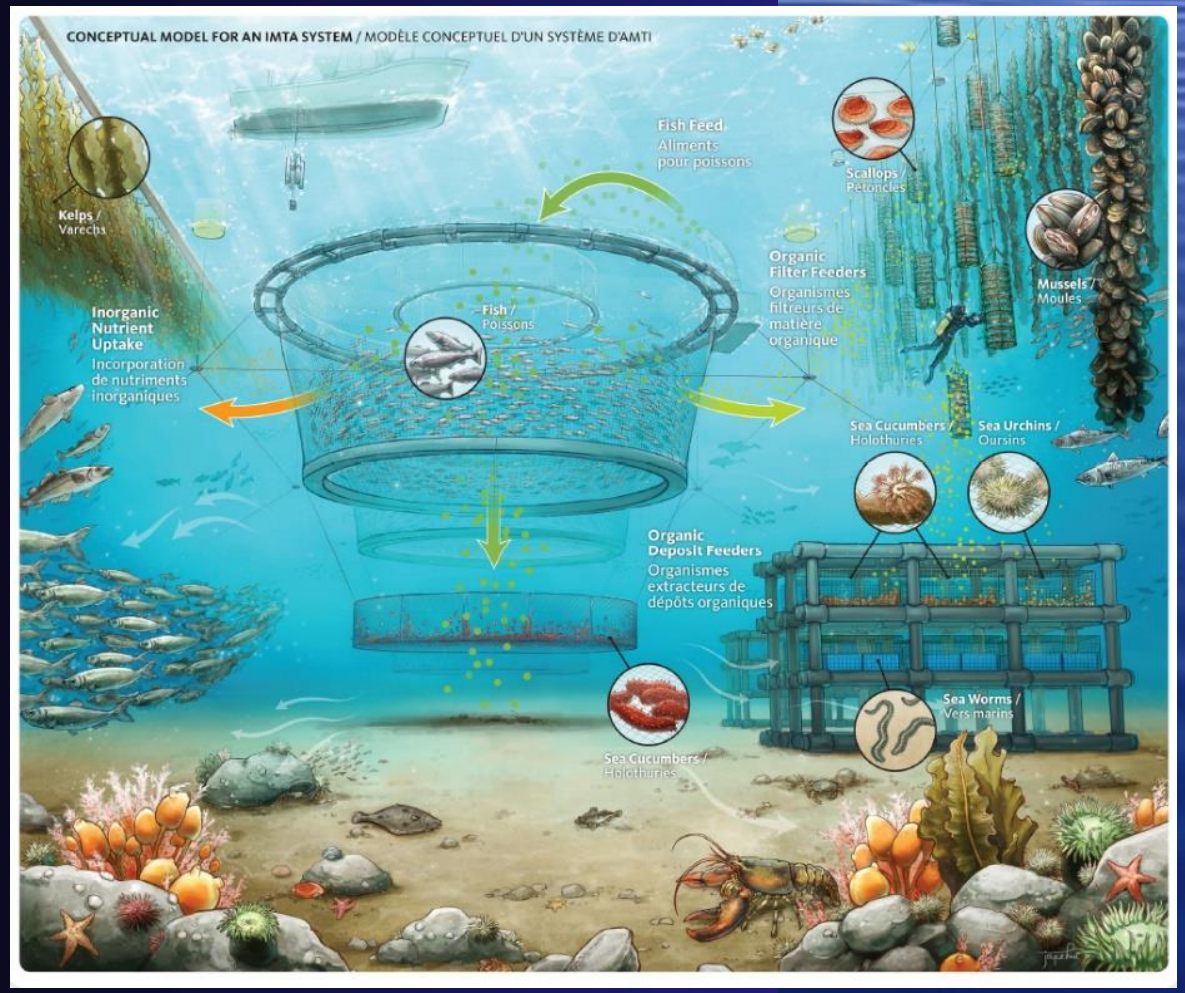
BLUEBOOST

- Increase sustainability of aquaculture.
- Carbon neutral
- Improve environmental impact ratings
- Improve economic returns

How?

BLUEBOOST aims to demonstrate that co-culture of a wide range of low trophic species with established species can boost current European aquaculture of blue foods and feeds while reducing the environmental footprint and moving towards a carbon-neutral aquaculture blue economy.

Integrate Multitrophic Aquaculture (IMTA)



Aquaculture Science branch, Ecosystems and Oceans Science Sector, Department of Fisheries and Oceans Canada, Ottawa Ontario, K1A OE6 https://www.dfo-mpo.gc.ca/aquaculture/sci-res/imta-amti/imta-amti-eng.htm

High trophic fed species, with lower trophic extractive species omnivorous / herbivorous fish, organic filter / deposit feeders and seaweeds.

Novel systems, traditional systems, wide range of low tropic species with established species.

Change monoculture to IMTA

Reduced environmental footprint. Carbon neutral. Increase products and economic output.

What is new?

Life Cycle Assessment and Economics

Use LCA and economic analysis to quantify and optimise the performance of IMTA systems towards producing carbon neutral seafood.

Outputs:

Optimise the environmental and economic sustainability

Novel methods for the assessment of circularity in IMTA systems

Demonstrate environmental and economic impacts of IMTA systems

Life Cycle Assessment and Economic data for both IMTA and mono-culture systems

Integrate Multitrophic Aquaculture (IMTA)

Slide by Dr. Stefano Carboni, IMC

- Six IMTA systems that integrated production of a wide range of low-trophic species.
- Outputs:
- Demonstrate IMTA systems combining low and high trophic species.
- Culture technologies for wide range of low trophic species.
- New blue foods and feeds.

IRTA

Institute
of Agrifood Research
and Technology

BLUEBOOST

An IMTA system prototype will be demonstrated in an operational environment (TRL 6) in three ponds (300 m2) in IRTA that is situated in the Ebro Delta an area where low coastal land is being affected by salinization due to climate change.

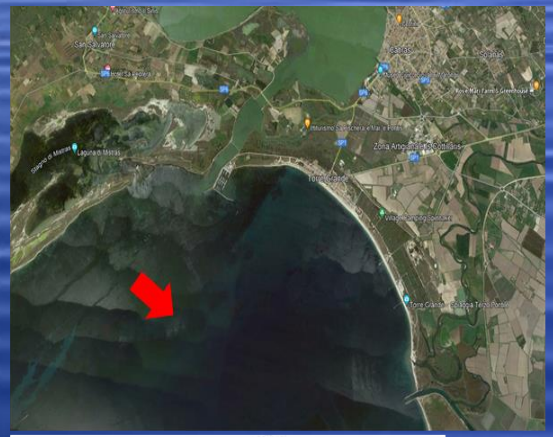
Species: flathead grey mullet (*Mugil cephalus*), European flat oyster (*Ostrea edulis*), Manila clam (*Ruditapes philippinarum*), Ulva sp.

Slide by Dr. Stefano Carboni, IMC

IMC International Marine Centre

BLUEBOOST

Develop an open cage marine IMTA system using finfish and European Native Oysters; Evaluate Nutrients Flows in the system;
Collect data for the LCA and economic analyses
Coordinate the Italian Stakeholder Coordination Group and communicate project outcomes.



Sea Bass

Sea Bream

European Flat Oyster

Species: European seabass (Dicentrarchus labrax), Gilthead seabream (Sparus aurata), European flat oyster (*Ostrea edulis*)

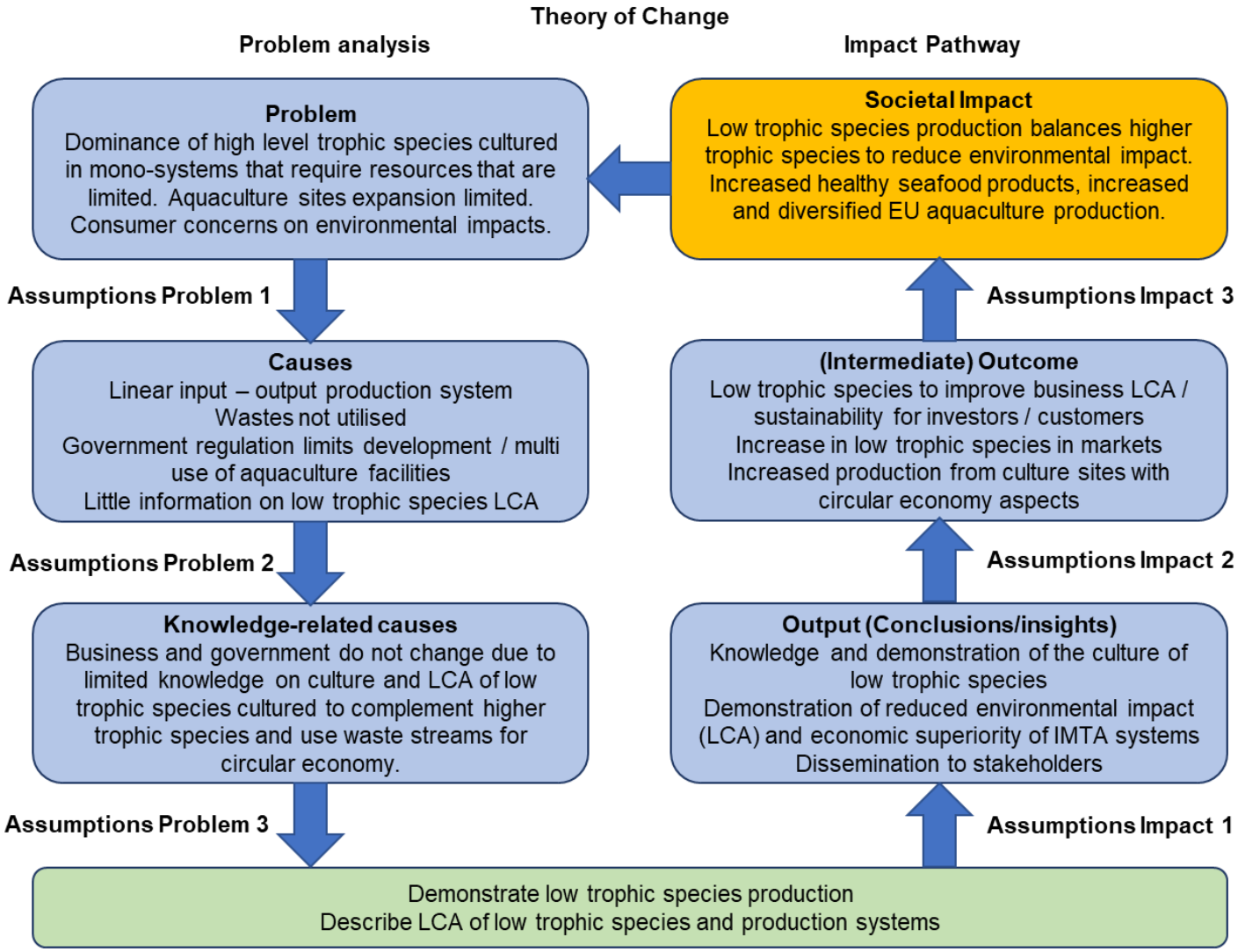
Slide by Dr. Stefano Carboni, IMC

- ✓LCA and Economics, monoculture → IMTA,

  - ✓Environmental benefits of IMTAs have not yet been robustly demonstrated in LCAs
  - ✓Cost Benefit Analysis tend to find that IMTA outperforms monoculture
  - ✓The common perception that the reason for low uptake of IMTA is low profitability is thereby challenged
  - ✓Combined economic and environmental assessments of IMTA are rare to absent

How can this change industry and society?

Theory of Change



Assumptions

Problem 1: Little incentive to change. Government does not encourage change.

Problem 2: Little knowledge on both culture of low trophic species and benefits for environmental footprint reduce incentive to change for both business and policy-makers.

Problem 3: Project needed to provide knowledge on both culture of low trophic species and their environmental footprint.

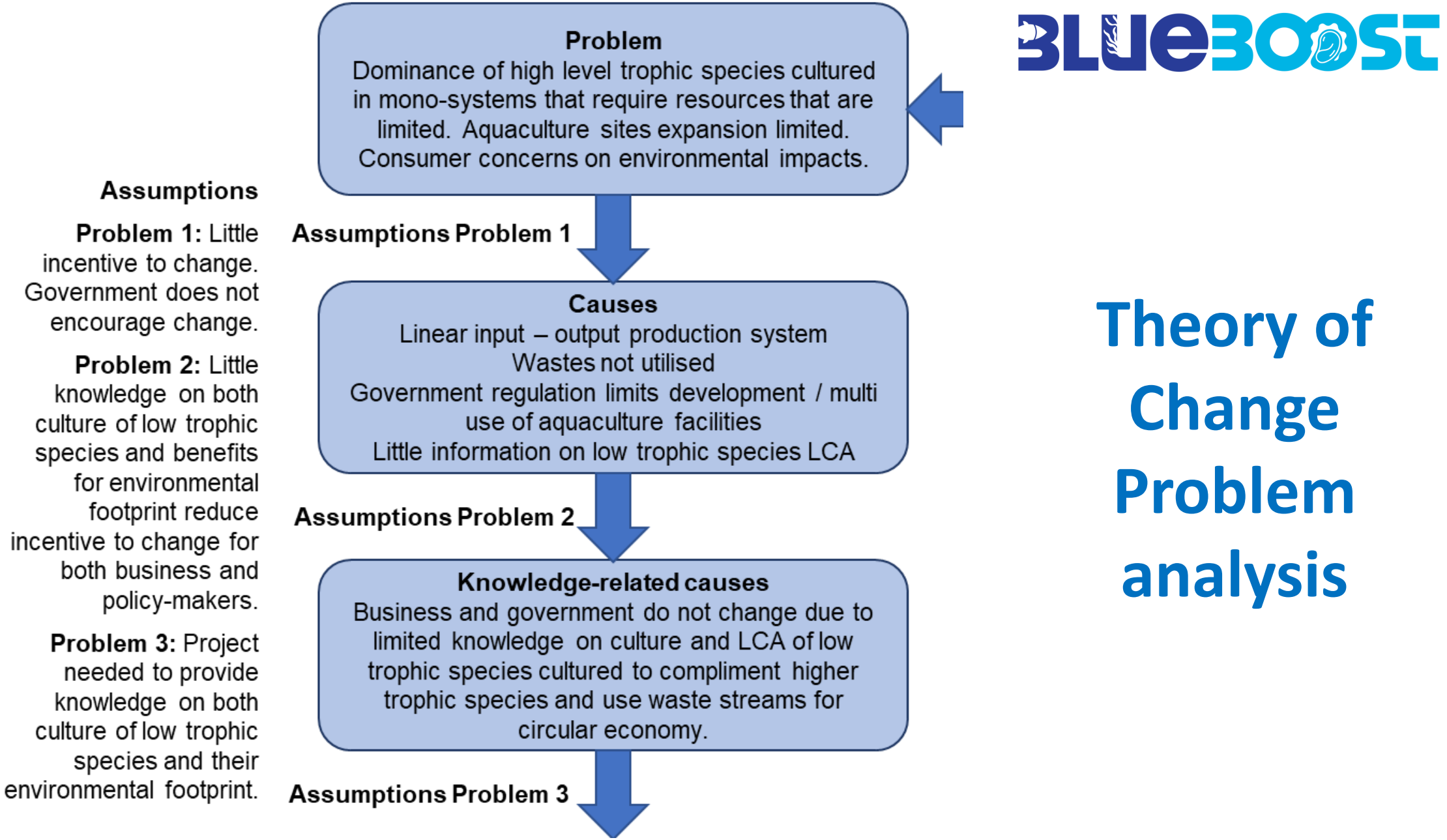
Assumptions

Impact 3: Investors provide money to business with lower environmental footprint. Consumers will prefer to buy lower trophic species, EU imports will reduce.

Impact 2: Businesses aim to demonstrably reduce environmental footprint assessing potential impacts of integration of low-trophic species by LCA approach. Policy-makers create conditions to incorporate low trophic species to complement high trophic species.

Impact 1: Project successful, all risks to project overcome.

Theory of Change Problem analysis



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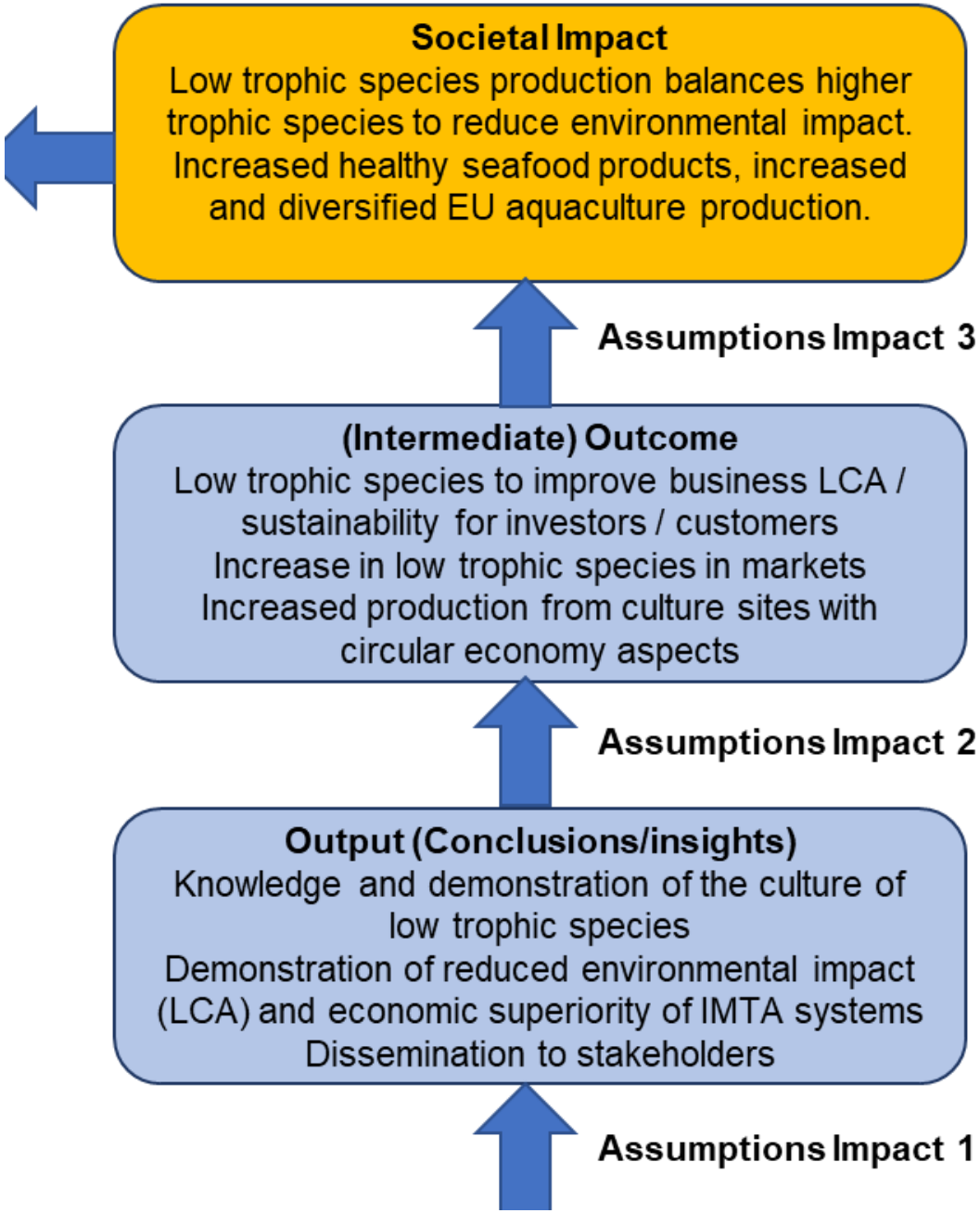
Theory of Change Impact pathway



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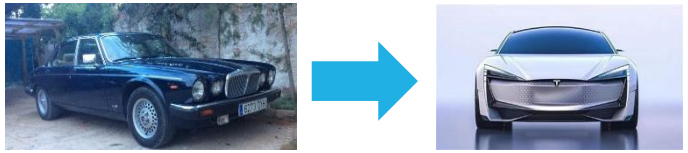
Theory of Change To Societal Change

Accelerated change

Both consumer and industry desire for more sustainability.

European car industry

- Availability of sustainable electric cars. Reduced environmental footprint.
- Prohibit unsustainable products (tax or prohibit combustion engine)



Aquaculture industry?

- Sustainable products - IMTA – demonstrated environmental and economic credentials.
- Site licensing – incentives to recycle and reduce waste.

Theory of Change To Societal Change

At the heart of the required changes is the **aquaculture industries' ambition to sustainably intensify production** activities and maximise economic return, together with **society's legitimate expectations to see the environmental footprint of goods and services being reduced**.

FUNDED PARTNERS

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IRTA Institute of Agrifood Research and Technology — Spain

S2AQUA — Portugal

ZUT — Poland

IMC International Marine Centre — Italy

FURG Universidade Federal do Rio Grande — Brazil

UFSC — Brazil

crea Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria — Italy

RISE Research Institutes of Sweden — Sweden

University of Helsinki — Finland

Co-funding of Project partners

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The End
Thank you