

Dans le cadre des projets

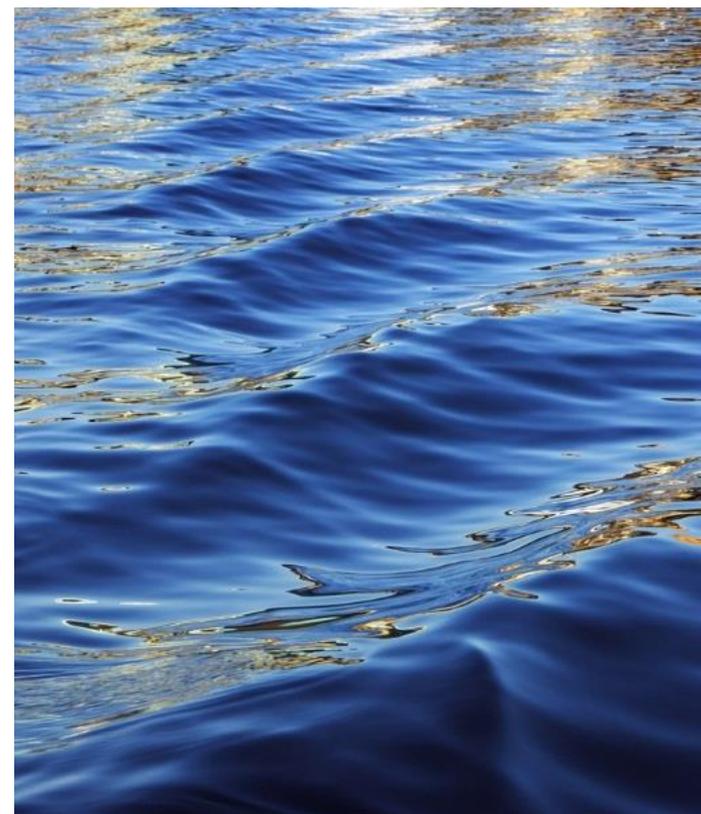


EPURVAL 2



IMTA in Portugal

Cunha, Maria Emília
IPMA



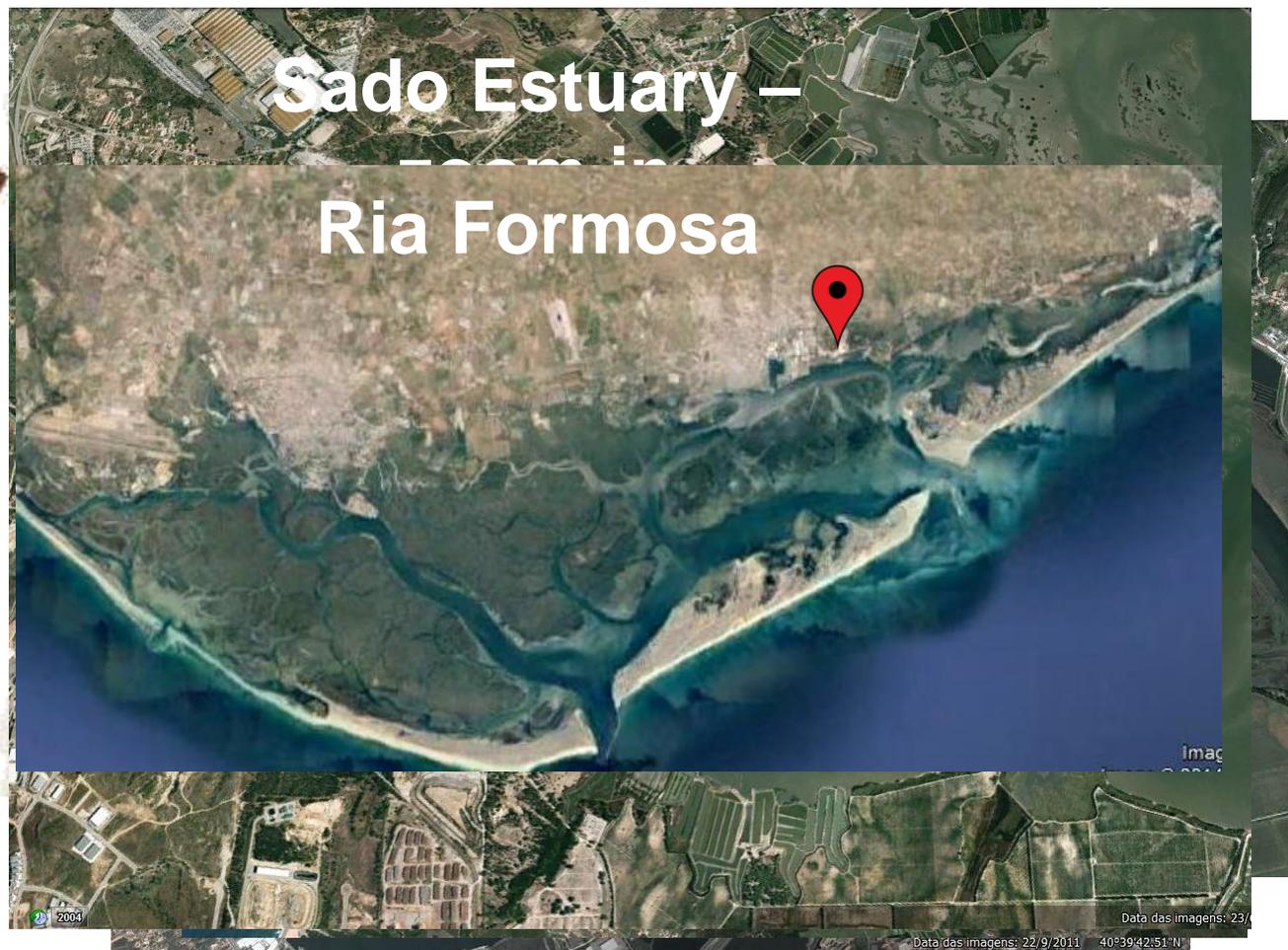
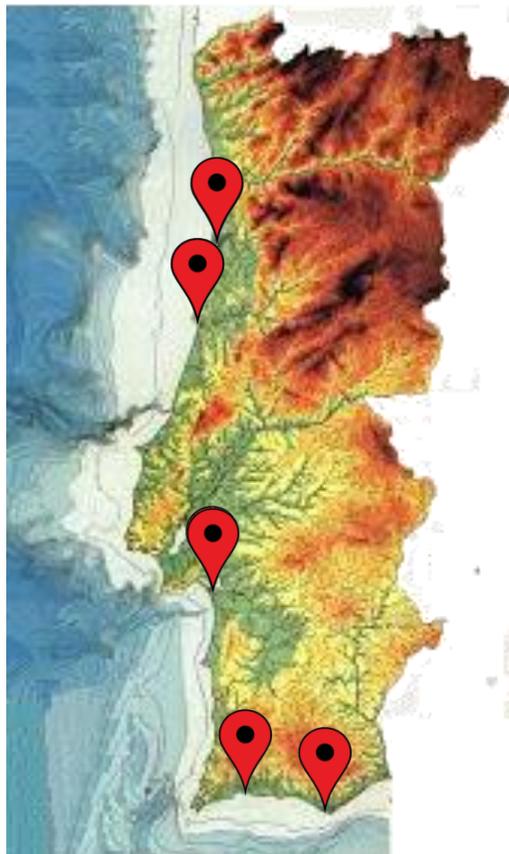
15 et 16 mai 2019

Associer les espèces pour une aquaculture durable :
l'aquaculture multi trophique intégrée

Avec la participation de :



Coastal Aquaculture in Portugal



Coastal Aquaculture in Portugal

The facts:

- Specially adapted salt ponds are the main aquaculture fish production systems in Portugal
- Production is usually in semi-intensive conditions (1.5 to 3 kg m³)
- Profitability is low given the costs of energy, feed and labour



The results:

- Abandon of the activity lead to lost of landscape and wet habitat for migratory birds due to the sedimentation of the ponds and/or real estate invasion



MOINHO dos Ilhéus: Premium oyster farming



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Avec la participation de :



Breiz'alg

ALGA plus: Focus mainly in the production of macroalgae



14 ha
Fully licensed
Good water quality

- Based on knowledge
- Focus on Atlantic species with commercial value and not produced in Northern Europe
- BIO Certification– fish & algae
- Production all year round
- Use of underutilized infrastructures
- Cluster of agro-food companies, university and biotech companies = partners





Production of algae in tanks

PT-BIO-03
Agricultura da UE



➤ 600 m² - 40 tons (fw) em 2017

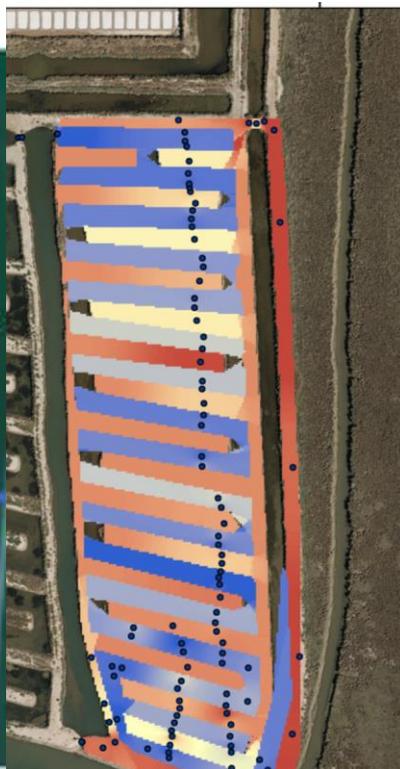


MADEINSEA: focus on the production of macroalgae



MADEINSEA
Innovation through Sustainability

- Macroalgae will be produced with fish and mollusks within an IMTA system adapted to earthen ponds, adopting the technology developed by IPMA.



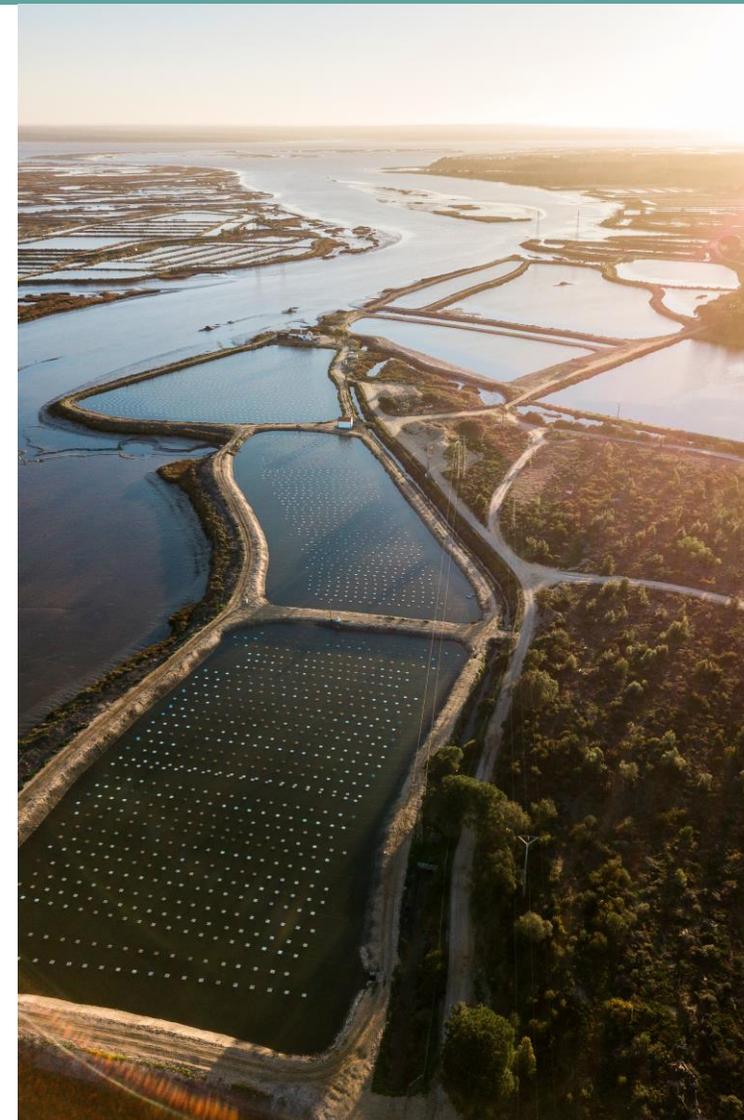
Modelo Digital Terreno |
 • topo_survey
 idw1h
 Value
 High : 3,10999
 Low : 0,07



AQUANOSTRA®

Aquacultura Integrada Multitrófica - IMTA

- They started as a pilot project with IPMA
- Colaboration with CCMAR and private enterprises
- Portocol development for bivale reproduction
- Fatening unit for flat oyster in IMTA
- Bivalve comercial hatchery
- Bivalve depuration unit
- IMTA project with ACUINOVA - "Project P-O"



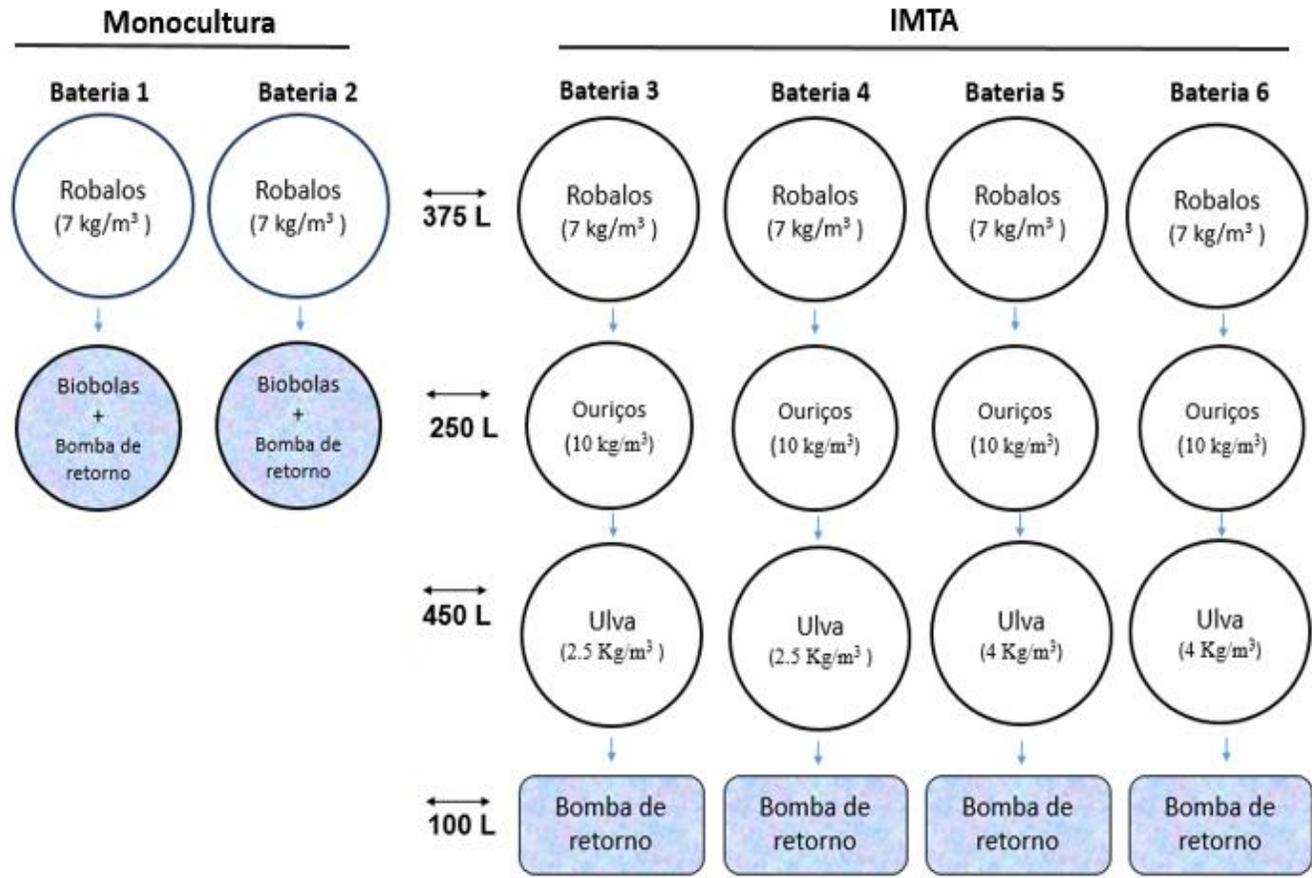
AQUANOSTRA: produces flat oyster in IMTA

Fatening unit

- Located at Reserva Natural do Estuario do Sado
- 10 earthen ponds in open system
- *Off-bottom production*
- IMTA system
- Flat oyster (*Ostrea edulis*)
- Sea bream (*Sparus aurata*)
- Meagre (*Argyrosomus regius*)
- Breems (*Diplodus spp.*)



UNIVERSITY of PORTO: European seabass and sea urchin production



Partners:

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T. Pereira,

R. Magalhães,

A. Oliva-Teles,

B. H. Peres

IMTA for European seabass and sea urchin production versus mono-production of European seabass



UNIVERSITY of PORTO: European seabass and sea urchin production



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IMTA for European seabass and sea urchin production versus mono-production of European seabass

This work was supported by INNOVMAR project (ref.NORTE-01-0145-FEDER-000035), within the research line INSEAFood, founded by the Northern Regional Operational Program (NORTE2020) through the European Regional Development Fund (ERDF)



UNIVERSITY of AVEIRO: Decreasing the load of suspended fine sediments and nutrients on the effluents of fish farms



Integrated multi-trophic aquaculture can play a key role on this issue by recycling nutrients that would otherwise be lost and impact the environment.



CONTACTS:

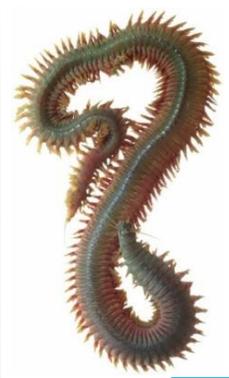
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UNIVERSITY of AVEIRO: Producing new products for food, feed and other applications (e.g., bioactive compounds, fishing bait...)



EPURVAL 2



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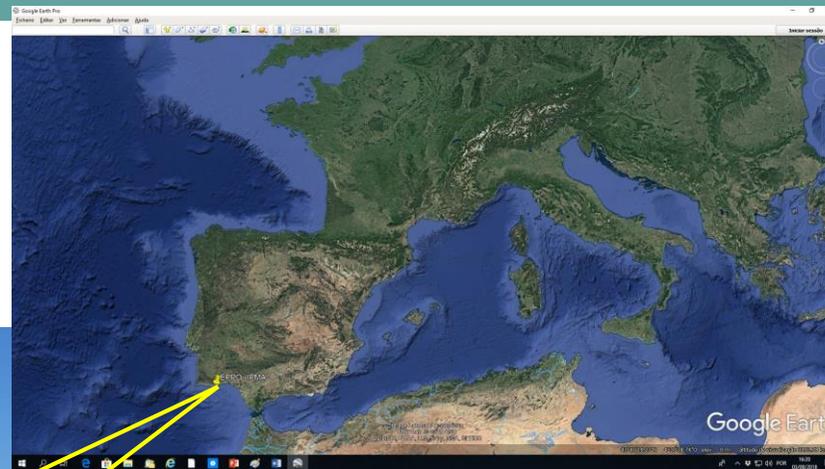
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Associer les espèces pour une aquaculture durable : l'aquaculture multi trophique intégrée

Avec la participation de :



IPMA: IMTA in earthen ponds



Main Objective:

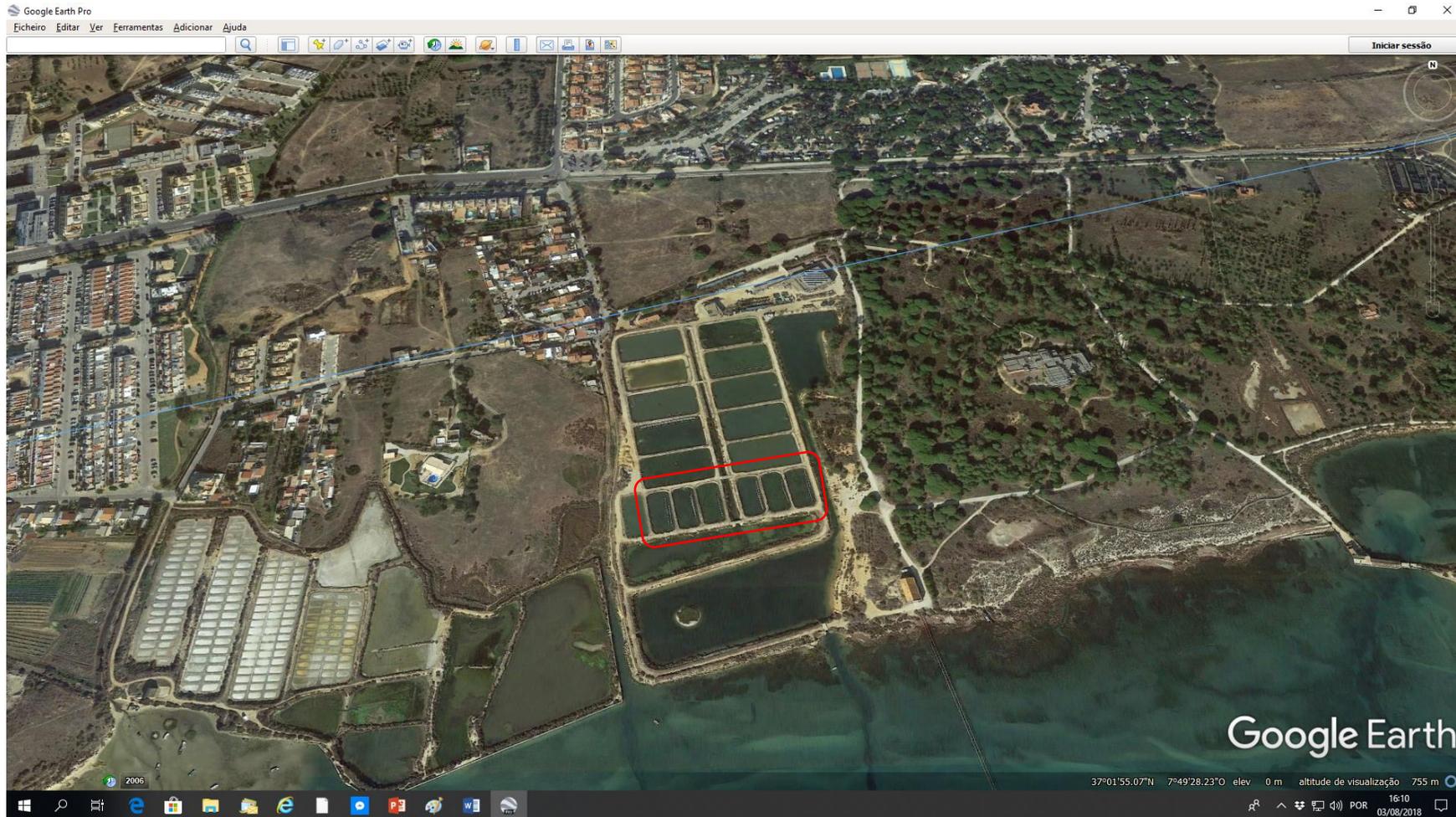
- to increase profitability of a commonly used production system (old salt ponds on wetlands) which actually uses one trophic level (fish) and to maintain or improve the environmental performance



IPMA's Aquaculture Research Station, Olhão, Portugal



- Studies has been taking place in six 500 m² x 1.5 m depth earthen ponds



Methods



Oysters

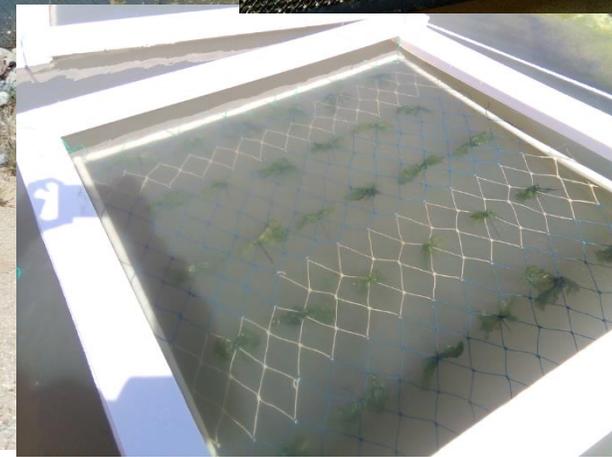
Meagre, white seabream, grey mullet

Macroalgae



a)

Oysters

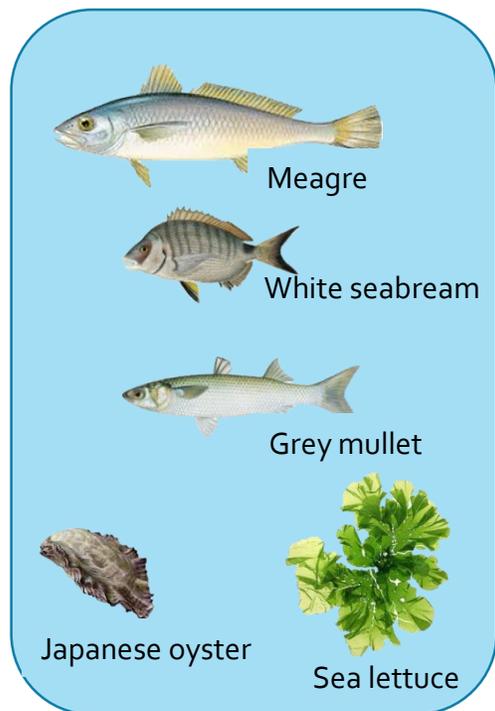


Ulva flexuosa

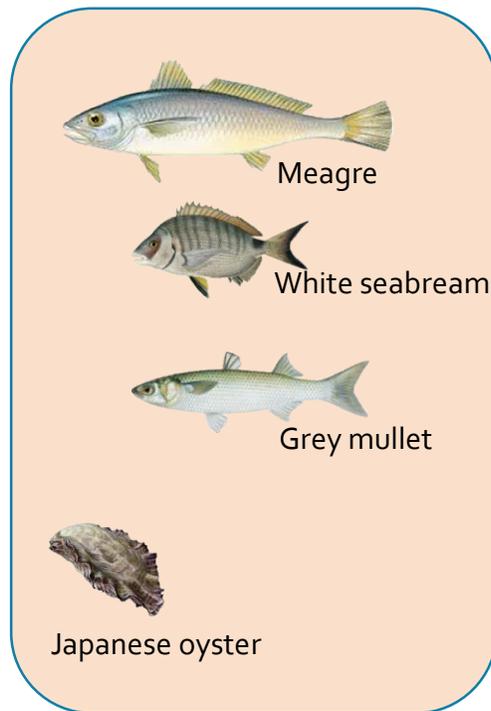
Methods

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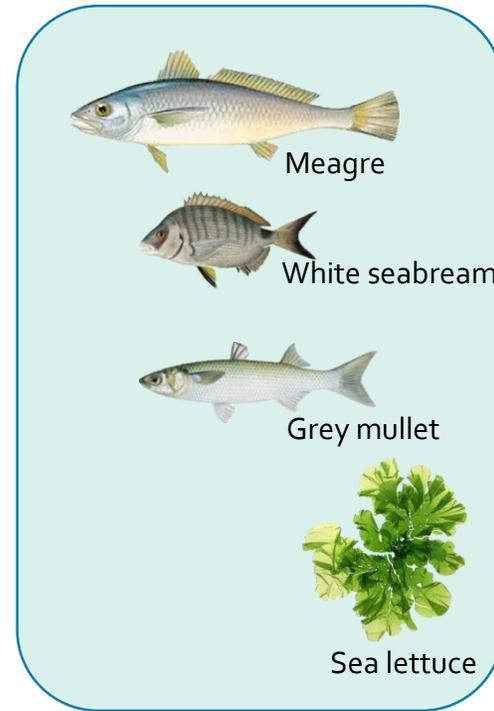
FOM Fish+Oyster+Macroalgae



FO Fish+Oyster



FM Fish+Macroalgae



Species	N animals/pond	Weight, g	Total length, cm	Condition index
<i>Argyrosomus regius</i>	1500	204.5 ± 63.3	26.6 ± 2.92	1.14 ± 0.12
<i>Diplodus sargus</i>	900	51.5 ± 18.61	14.2 ± 1.47	1.74 ± 0.46
<i>Mugil cephalus</i>	550	117.6 ± 95.75	19.4 ± 5.63	1.14 ± 0.19
<i>Crassostrea gigas</i>	18000	0.5 ± 0.09		

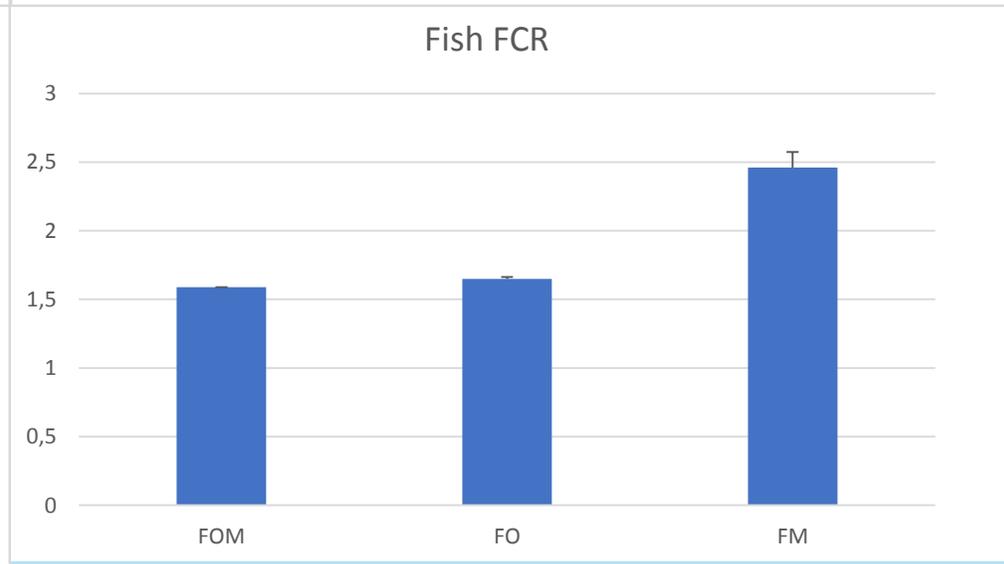
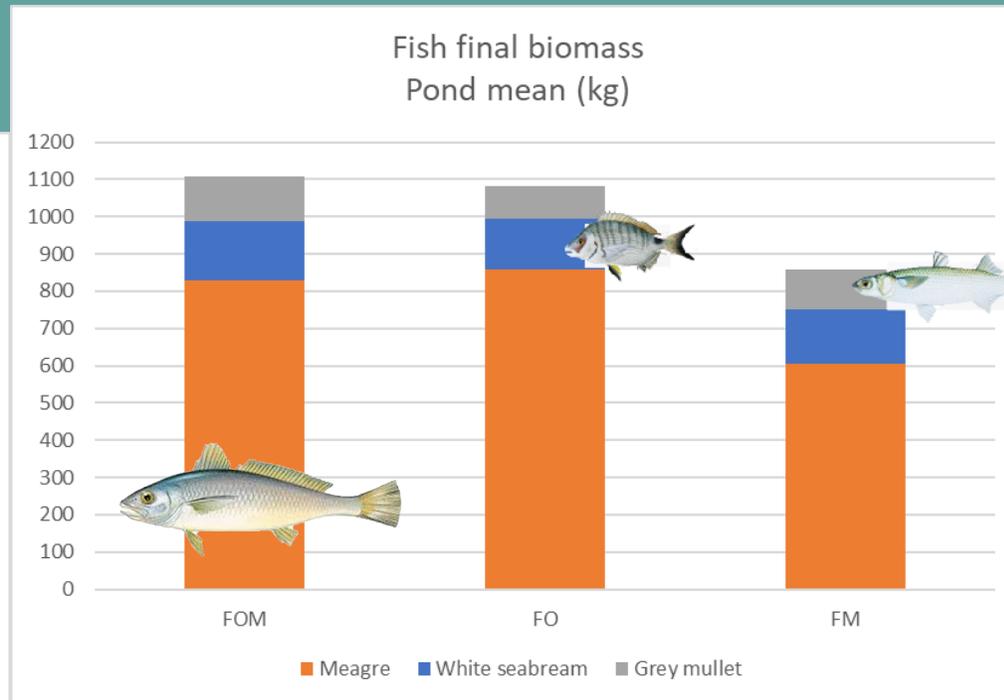
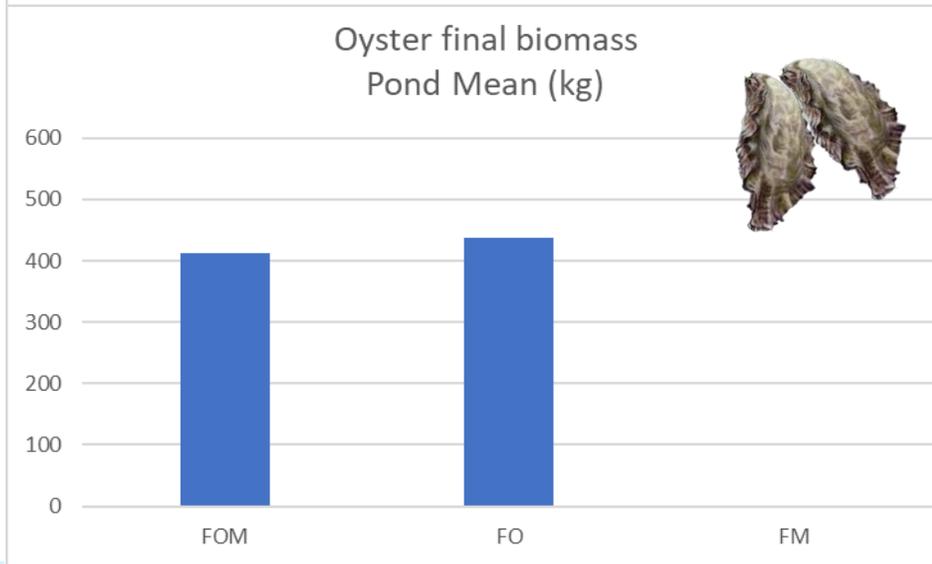
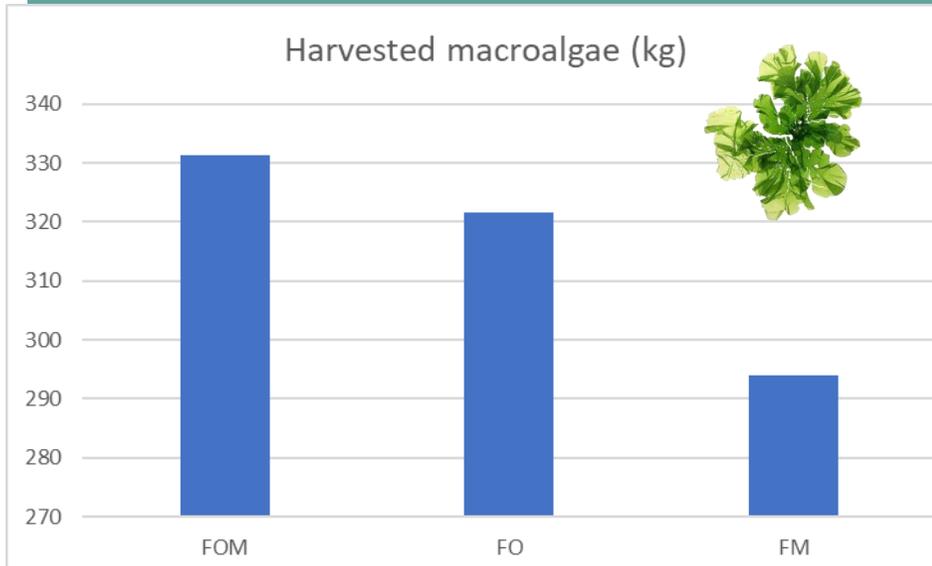
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Results

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To conclude...

Flow of matter in earthen pond fish, oyster and macroalgae IMTA

