

QBIOTECH CHEMICALS (ONDOKUZ MAY UNIVERSITY- SAMSUN/TURKEY)

Blue Economy Sector:

Macroalgae based blue-biotech

Business Location:

Start up and University in Samsun

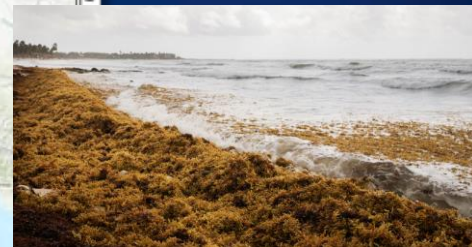
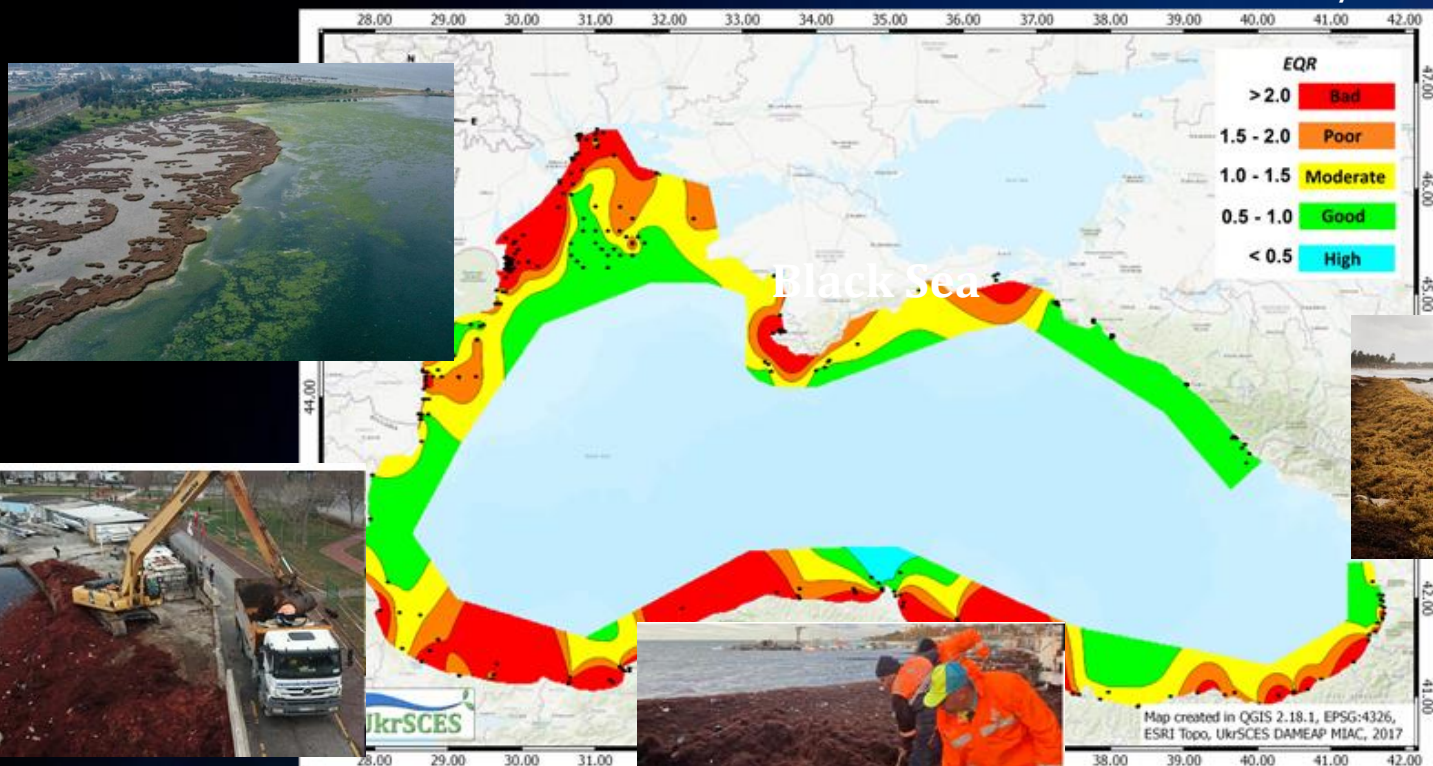
**Product / Services
Offered:**

- *Monitoring and collection of the seaweed population in black sea*
- *Production of biocompounds (agar, alginate etc) from macroalgas collected or cultivated in black sea*
- *Macroalgae farming practices on marine integrated platforms in black sea*



The Black Sea is widely considered as the world's most polluted sea

BLACK SEA STATE OF ENVIRONMENT REPORT 2009-2014/5

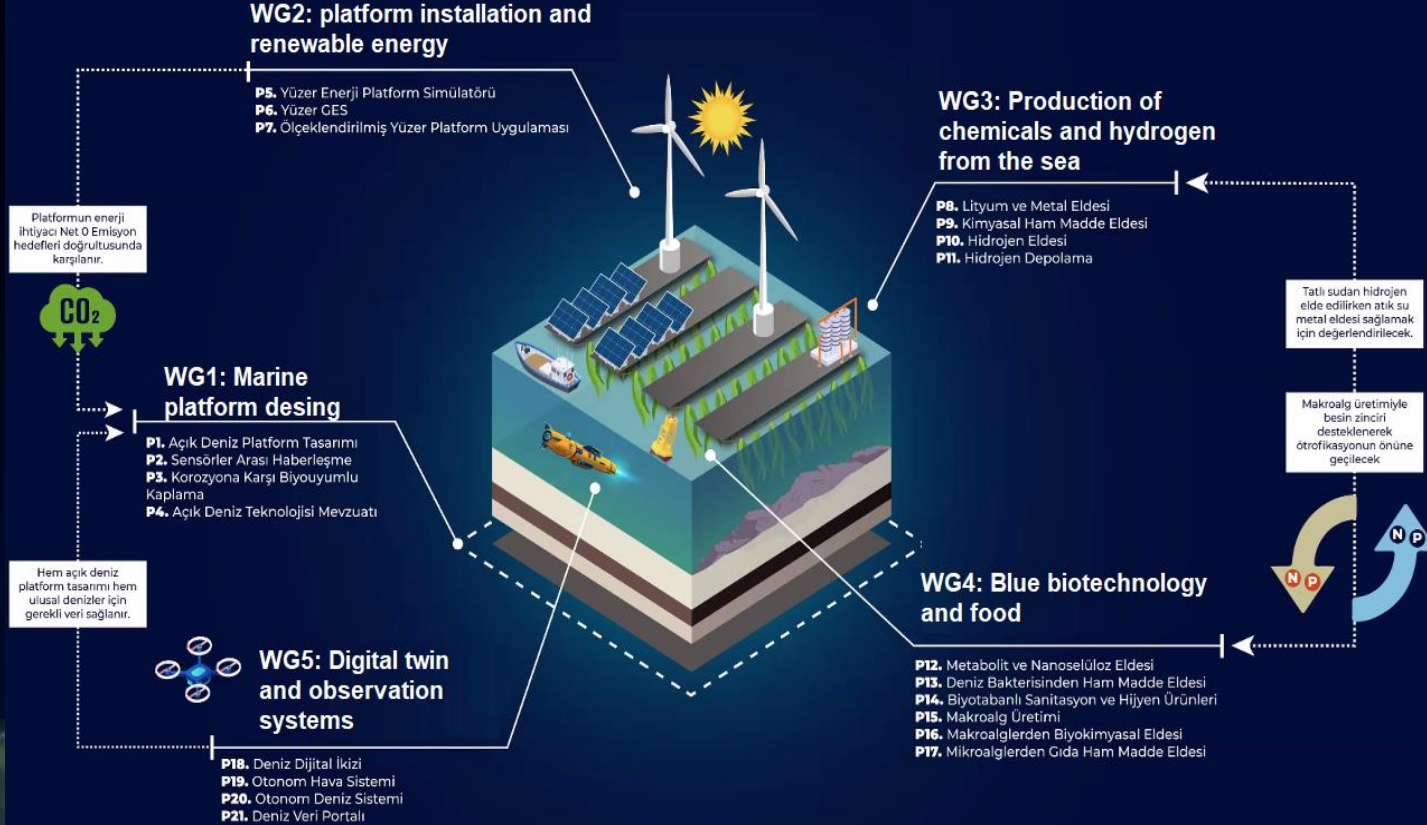


BLACK SEA ACCELERATOR

for a sustainable Blue Economy

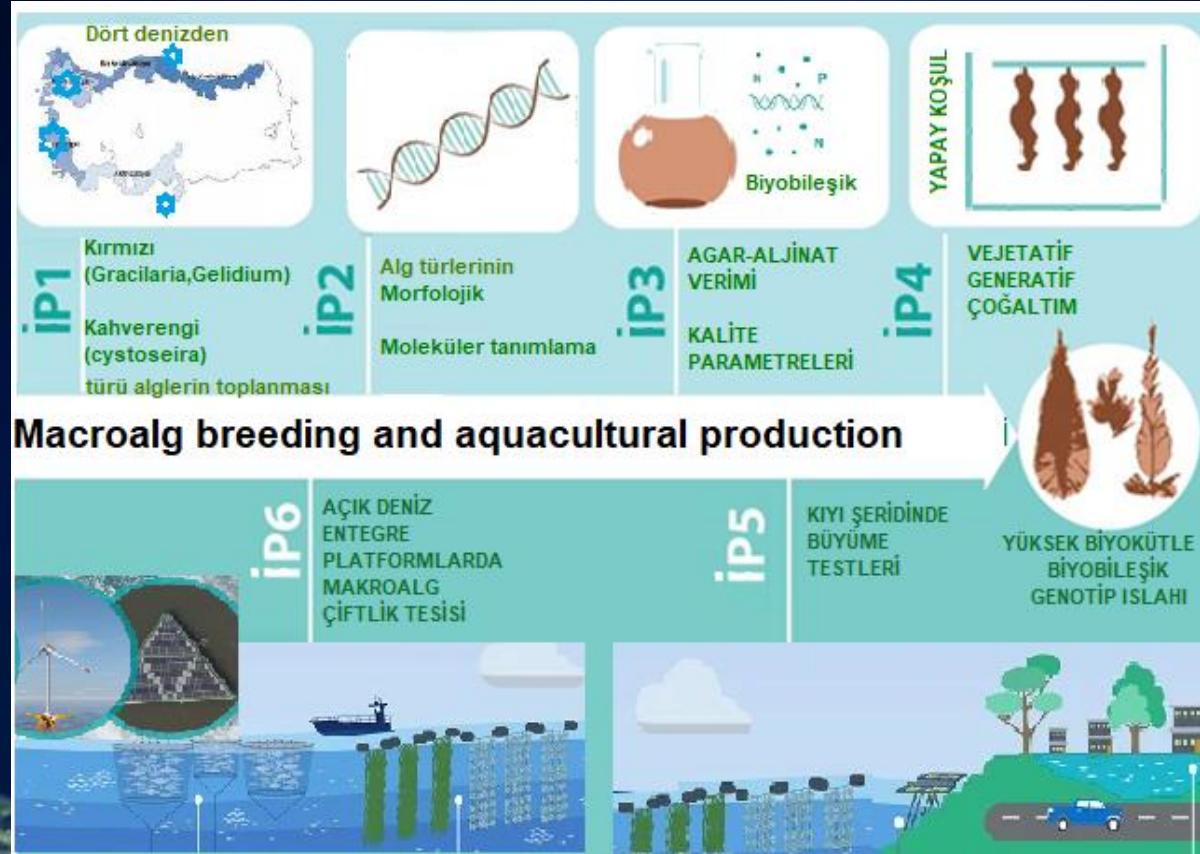
- 4 Institutions
- 3 Universities
- 7 private companies
- 17 project
- Budget: 5 milyon

BLUE-TECH; (Prof.Dr.Barıs Salihoğlu) OFFSHORE ECONOMY PLATFORM IN TURKISH SEAS





BLUE-TECH; OFFSHORE ECONOMY PLATFORM IN TURKISH SEAS



- Collection of macroalgae species
- Selection of best genotypes
- Vegetatif and generatif production
- Aquaculture in coast and platform

BLACK SEA ACCELERATOR

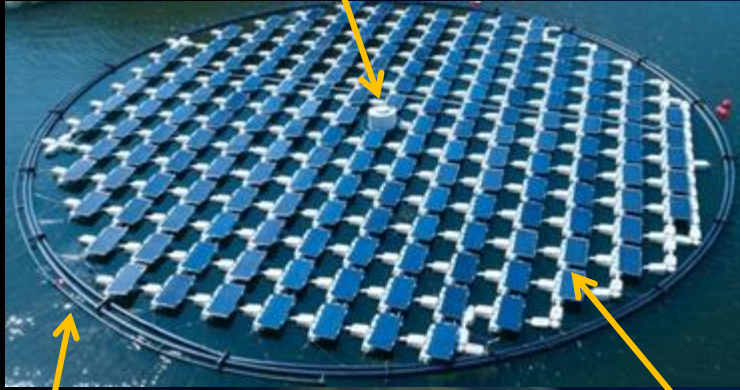
for a sustainable Blue Economy



BLUE-TECH; OFFSHORE ECONOMY PLATFORM IN TURKISH SEAS

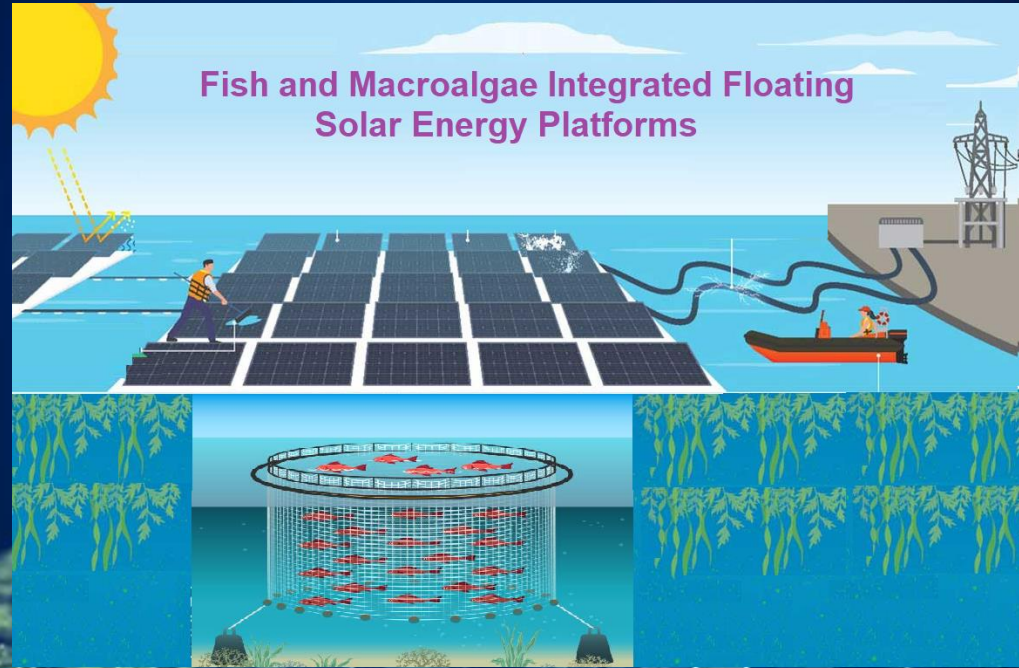
- Test of Macroalgae farming under and around solay systems
- Test of entegration of this system with fish cages
- Biochemical production from collected and cultured macroalgae

Otomatik fish feeding and
observing system



Macroalgae
cultivation area

Solar panels



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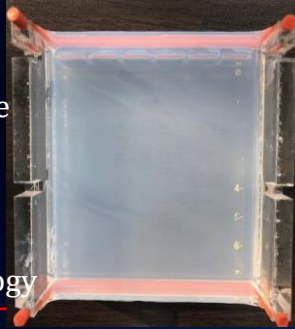
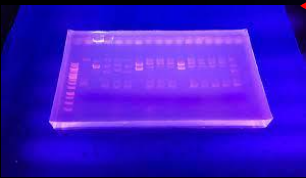
agar

Food

Agriculture

Biotechnology

Microbiology



Blue-biotech products



Gracilaria



Gelidium

Agar-Agar
From
Black Sea' Red Algae

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Blue-biotech products

Alginate

Alginate From Black Sea' Brown Algae

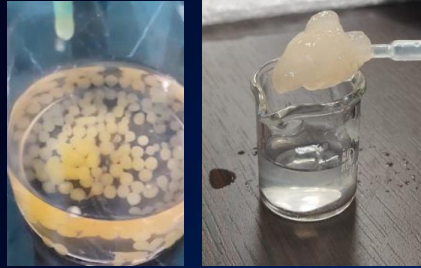
Encapsulation of solution

- Food (juices, gels)
- Agriculture (fertilizers)
- Polymer for textile



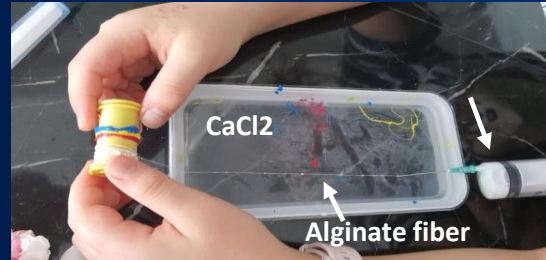
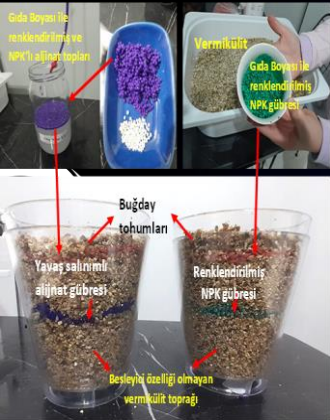
Cytosoria

Food



AGRICULTURE
Biodegradable, slow
release liquid fertilizer

TEKSTİL FİBER



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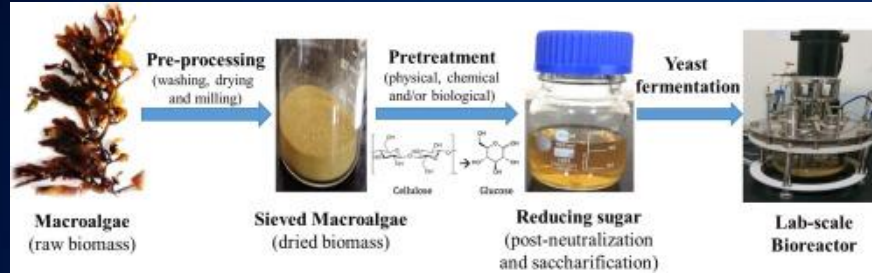
for a sustainable Blue Economy

Macroalgae cellulose-based biochemicals and bioproducts



Gracilaria
AGAR

Cytosoria
ALGINATE



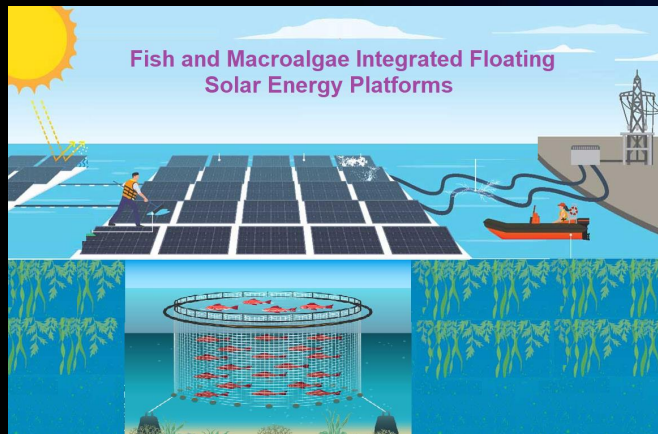
Cellulose $\xrightarrow[\text{Sea water}]{\text{Hydrolysis}}$ Sugar $\xrightarrow{\text{Fermentation}}$ Biyoetanol

WASTE



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for a sustainable Blue Economy



Economical Impact

Macroalgae based products

Alg-based biochemicals and fish production



Environmental Impact

Cultivated seaweeds

- absorb large quantities of pollutant (N, P, heavy metals etc.)
- produce large amount of O₂
- have excellent effect on decreasing eutrophication.

Social Impact

Cultivated seaweeds

- create new job opportunities for fisheries
- New source of income for people live in coastal region

Innovative Renewable energy production

Visions and Strengths:

- *Monitoring the change of macroalgae population and biodiversity to select the best genotypes and locations for seaweed farming*
- *Establishment of seaweed cultivation and harvest system in black sea*
- *Production of the biotech compounds (agar, alginate, cellulose etc.) from cultivated and wild-type seaweed*

Hopes from the Accelerator:

- *Financial support for the establishment of macroalgae based farming practices in Black sea,*
- *Scientific collaborations for bilateral national or international projects to improve macroalgae based farming systems*