





ORTA DOĞU TEKNİK ÜNİVERSİTESİ
MIDDLE EAST TECHNICAL UNIVERSITY

Blue Growth Initiative for Research and Innovation in the Eastern Mediterranean

Institute of Marine Sciences
Turkey

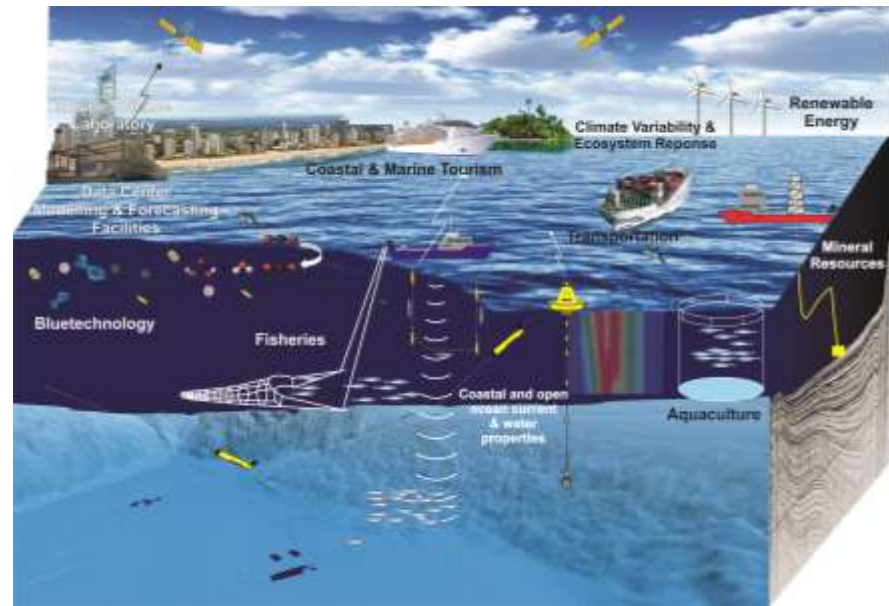
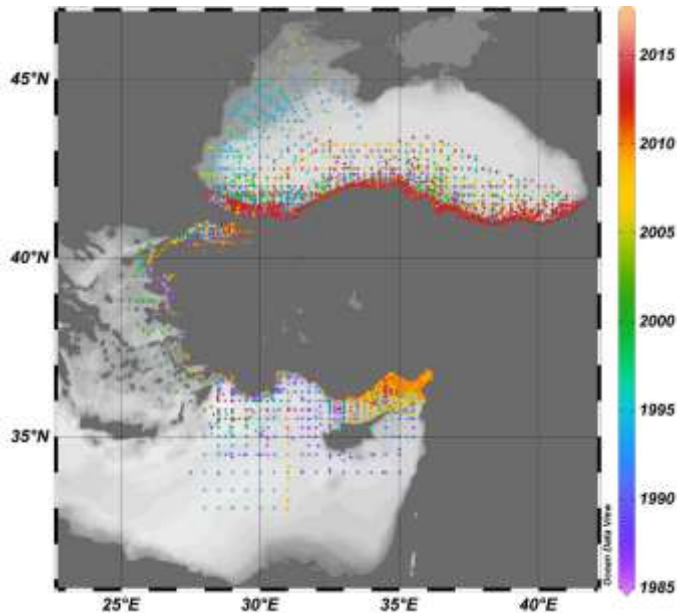
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Talk outline

- National strategies/policies
- Alignment with BLUEMED themes and priorities
 - Theme 1: Key enabling knowledge for the Mediterranean
 - Theme 2: Key sectoral enablers in the Mediterranean
 - Theme 3: Enabling technology and capacity creation for the Mediterranean
Innovative human potential and infrastructure required
- Regional approach for the Eastern Mediterranean towards partnership
- The Turkish Eastern Mediterranean Region Potential for Blue Growth



Blue Growth Related National Strategic Plans

• The Ministry of Transport, Maritime Affairs and Communication

- Strategic plan 2017-2021
- Developing action plans for short and long term maritime transport
- Contributing to the development of the maritime affairs
- Developing combined transport
- Developing maritime security strategies



• The Ministry of Energy and Natural Resources

- Strategic plan 2014-2018
- Increasing **green energy** capacity from solar, wind and wave energy.
- Exploration of new marine **hydrocarbon resources** in Turkish and international waters
- Generating new geological, geophysical and oceanographic dataset for natural hazard, climate change, coastal protection researches

REPUBLIC OF TURKEY
MINISTRY OF
ENERGY AND
NATURAL RESOURCES



Blue Growth Related National Strategic Plans

• The Ministry of Environment and Urbanisation

- Strategic Plan 2013-2017
 - Preparing marine spatial plans
 - Implementation of Integrated Coastal Zone Management
 - Preparing action plans to decrease the marine pollutants including marine litter
- Creating a water quality monitoring action plan from watershed to deep sea



• The Ministry of Forestry and Water Affairs

- Strategic plan 2017-2021
- Creating a national water information system to protect the water resources
- Monitoring the quality of water to comply the related EU directives.



• The Ministry of Food, Agriculture and Livestock

- Strategic Plan 2013-2017
- Creating a Vessel Monitoring System
- Controlling the quality of water sources for aquaculture
- Directorate for fisheries and aquaculture



Blue Growth Related National Strategic Plans



The Ministry of Development

- Responsible for national infrastructure investment
- Marine Ecosystem and Climate Research Centre (DEKOSİM) – 2012
- The Turkish National Marine Research Strategy (TUDAS) – 2014
- Evaluation of the Marine Research Capacity in Turkey – 2017
- DEKOSİM2 - 2019



Blue Growth Related National Strategic Plans

Middle East Technical University - Institute of Marine Sciences

Center for Marine Ecosystems and Climate Research

Novel Labs - Networked Observation – Time Series

(DEKOSIM) Project (2012-2018) – DEKOSIM2 Project 2019-2023

- Supported by the Turkish Government
 - New Laboratory dedicated to Marine Sciences
 - New Observing Systems: Mooring, Argo, Scanfsh, Gliders, Time Series, ...
 - Cruises in Eastern Mediterranean and Black Sea



Sea Expeditions
Time Series



Blue Growth Related National Strategic Plans

Action Plans

- National **Biological Diversity** Strategy and Action Plan (2008-2017) of the 9th Developmental Plan
- Turkish **Climate Change** Strategy (2010-2023)
- National Sciences and Technology Policy (2003-2023): Developing new technologies for **sustainable water management** resources, and for marine pollution
- National Basin Management Strategy (2014-2023)
- National Strategy for **Marine and Coastal Protected Areas** (draft)
- United Nations Decade on Biodiversity - Aichi Targets agreement that contributes to the implementation of the Strategic Plan for Biodiversity for the period 2011-2020.
- Marine ecosystem research is also a strategic field of activity for Middle East Technical University along with renewable energy and sustainability (jointly entitled I-REES, <http://yesap.metu.edu.tr/about>).
- Ministry of Development, National Strategy For Regional Development (2014-2023)



European challenges:

- Adapt to and mitigate climate change
- Ensure food- and energy-security
- Preserve biodiversity
- Promote superior alternatives to our fossil-based economies
- Foster economic growth and social prosperity.



Alignment with BLUEMED themes and priorities

Theme 1: Key enabling knowledge for the Mediterranean

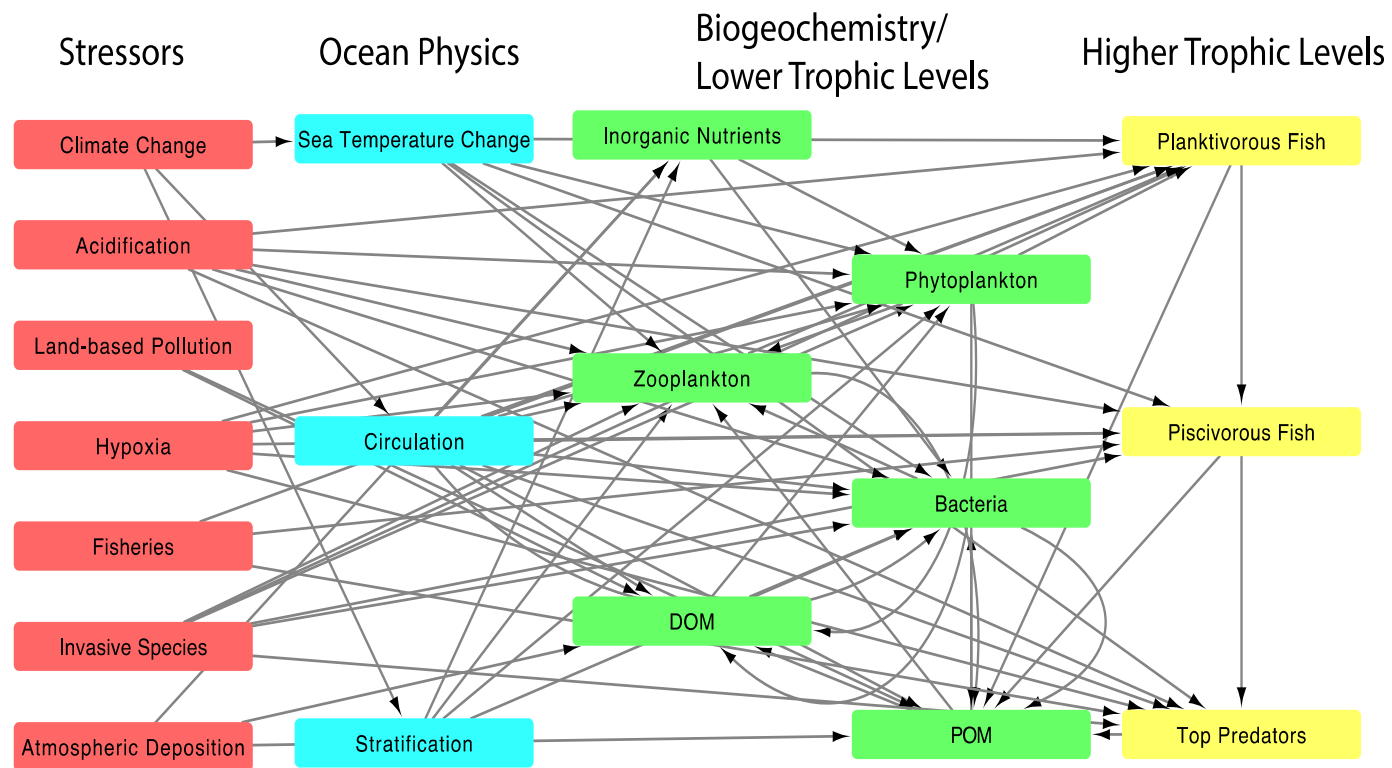
PRIORITIES and ACTIONS

- A coordinated network of marine institutes, universities, public agencies, stations, observatories and companies
- Assess inputs from atmosphere-land-sea and anthropogenic pressures leading to change in marine and coastal ecosystems
- Understanding environmental conditions conducive to invasions, effects on habitats, identifying conditions for ecological resilience
- Assessment of litter, micro- nano-pollutants
- Identifying/disentangling the effect of multiple stressors
- Assessment of climate related risks
- Synoptic surveys/observations
- Long term monitoring



Stressors on ecosystems at the Mediterranean system level

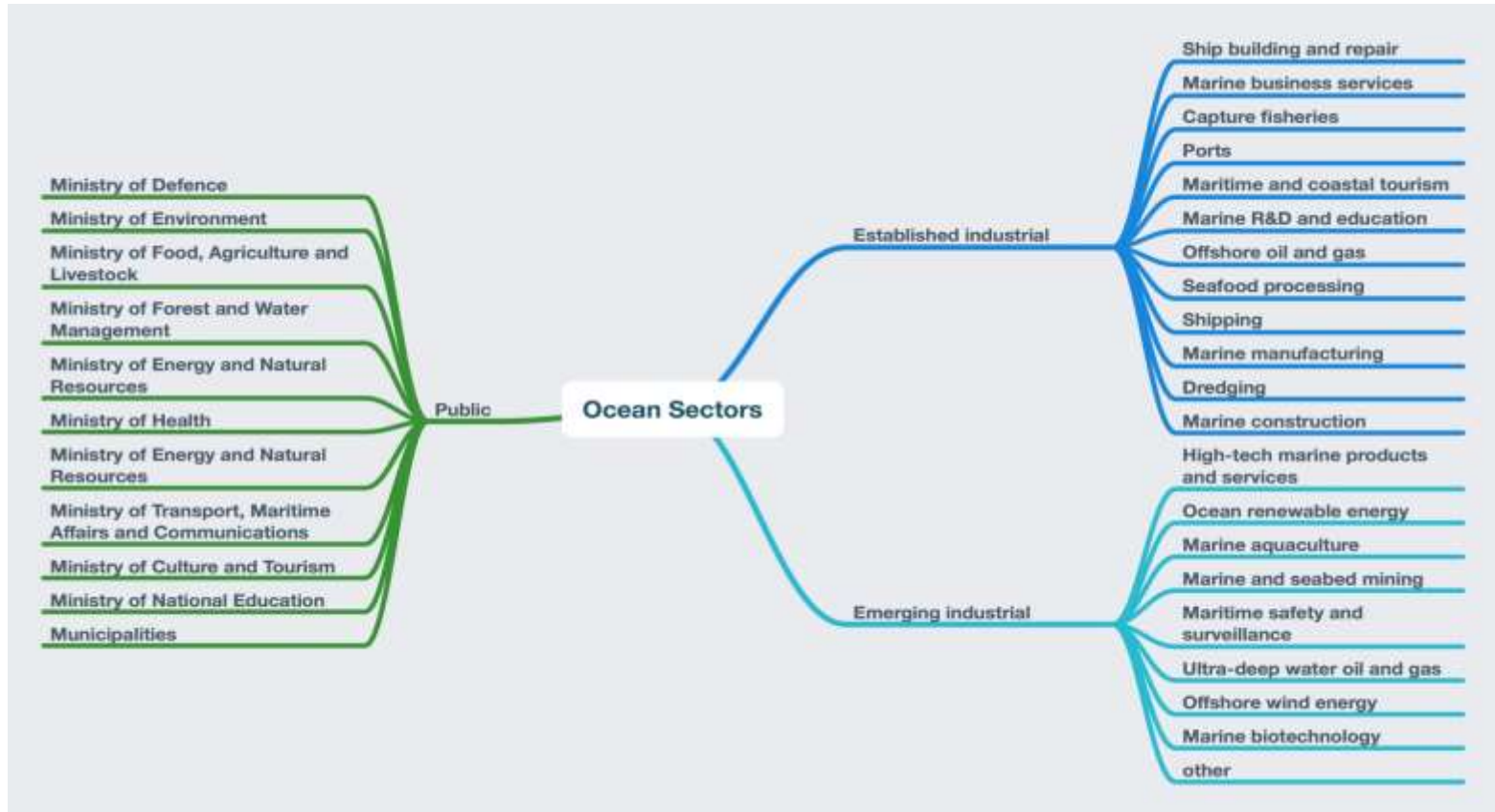
Human activities and natural variability result in a range of stressors that may interact and have greater impacts than expected, compounding direct and indirect effects on different levels of the ecosystems



Alignment with BLUEMED themes and priorities

Theme 2: Key sectoral enablers in the Mediterranean

New regional vision



Summary of Ocean sectors including public, established and emerging industrial components



New Regional Vision for the Mediterranean

Development of products with high economic (along the whole value chains) and by guaranteeing environmental benefits

Selling Products

- Sustainable and cost-effective fishing and aquaculture practices
- Early warning systems for water quality
- Energy efficient maritime routes
- Innovative monitoring instruments
- Marine spatial plans
- Marine energy generation devices
- Cost-efficient biodiesel production methods
- Sustainable domestic and industrial discharge policies
- Coastal construction policies
- Cost effective harbour dredging
- Early warning systems
- Sustainable domestic and industrial, domestic discharge and litter
- Laboratory services
- Required MSFD related reports for Turkey
- Environmental awareness education



Decision Support Unit

Technology and Knowledge Transfer Bridge



Ocean sectors

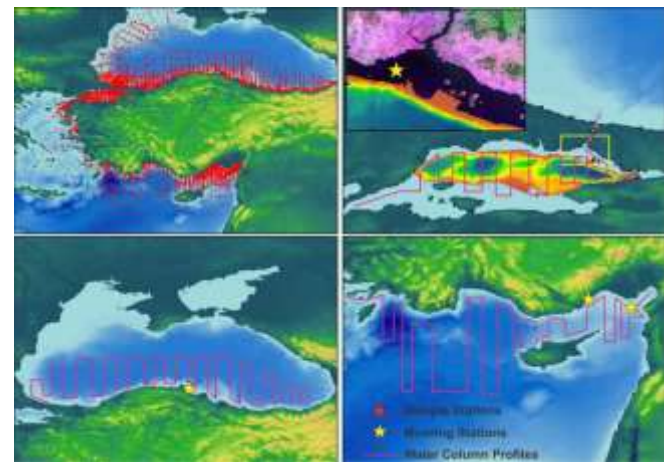
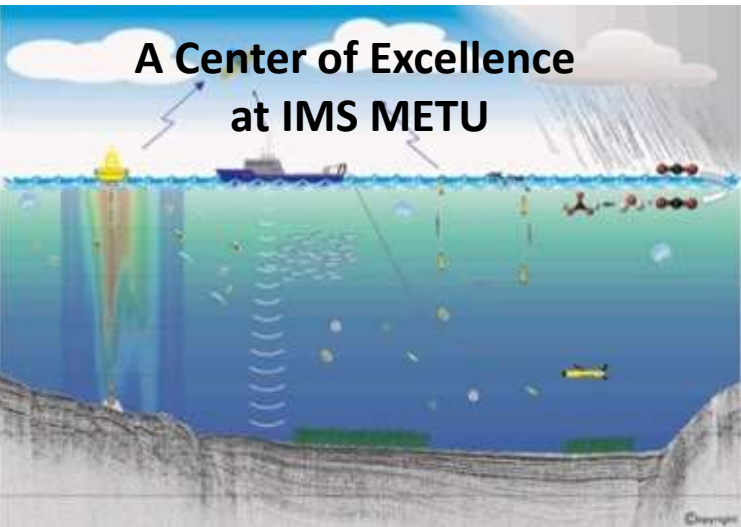
- Ship building and repair
- Marine business services
- Capture fisheries
- Ports
- Maritime and coastal tourism
- Marine R&D and education
- Offshore oil and gas
- Seafood processing
- Shipping
- Marine manufacturing
- Dredging
- Marine construction
- High-tech marine products and services
- Ocean renewable energy
- Marine aquaculture
- Marine and seabed mining
- Maritime safety and surveillance
- Ultra-deep water oil and gas
- Offshore wind energy
- Marine biotechnology



Theme 3: Enabling technology and capacity creation for the Mediterranean

Innovative human potential and infrastructure required

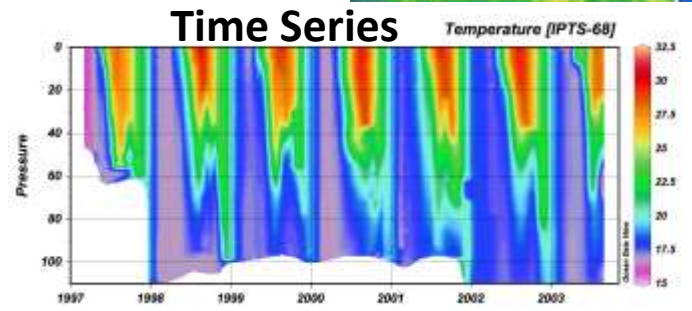
Strong regional expertise in the Eastern Mediterranean, IMS METU and DEU that started POEM projects and FP programmes)



Innovative Oceanographic Equipment



Scanfish



Specific partnership actions that bring together all stakeholders in the field such as a Technology Platform can be an effective way.

Eastern Med countries should be well informed and included as part of the initiative otherwise plans and achievements be partial and regional.



Regional approach for the Eastern Mediterranean towards partnership

Connecting knowledge to provide real services and that address citizen's needs

EUROPEAN TALENT POOL

Process-based field experiments

Instrument development

Operational Modelling and Forecasts

→ Enable the innovative multi-sectoral growth built on newly developed capabilities

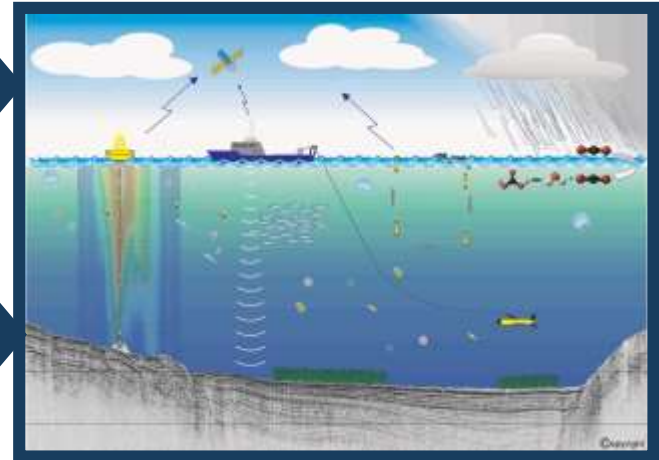
Long term/real time observations

INNOVATIVE RESEARCH SPACES

Platform 1
Earth, Marine Biogeochemistry, Ecology and Biodiversity Observations, Science and Applications

Platform 2
Integrated, Atmosphere-Watershed-Marine Modelling and Predictions

Platform 3
Socio-economics, environment and human health, resource management and services



Integration of disciplines

Interactive integration with end-users

Decision support units

Strategies for economic growth

→ Sufficient competence to engage nations and regions
→ Holding a competitive position in the global value chains

**National, regional and EU level strategies
BLUE GROWTH, CFP, WFD, MSFD, MSP, IMS, TUDAS**

The Turkish Eastern Mediterranean Region Potential for Blue Growth

OPPORTUNITIES

- Existing sectors such as Tourism, Maritime, Agriculture
- Wide shelf area and deep sea area, potential for new energy, mineral and deep sea fisheries resources
- Existing Key knowledge base, Human capacity and institutions
- National plans for a logistical hub, superimposed by global trends such as 'belt and road' project

CHALLENGES

- Multiple stressors: increasing temperatures, pollution and lessepsian migration.
- Changing climate is influencing the hydrological systems as well as the formation of dense waters
- Lack of a science based integrated management plan for important sectors such as tourism, aquaculture, energy and transportation in the region.

WAY FORWARD:

Blue Valley: A proposal for
Centre of Blue Growth in
Mersin, Turkey

- Facilitate stakeholder and scientist exchange
- Coordinate marine spatial planning in the region
- Generate science-based products and solutions
- New high value products (e.g., pharmaceuticals, enzymes)

