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TUBITAK MRC

Environment and Cleaner Production Institute (ECPI)

Marine and Coastal Research Unit

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Description of the Organization – TUBITAK MRC ECPI MCRU

- **Marmara Research Centre (MRC)** is the largest research organization under TUBITAK (Scientific and Technological Research Council of Turkey) since 1972. The Center consists of eight institutes including the Environment and Cleaner Production Institute (ECPI).
- **TUBITAK MRC ECPI** develops knowledge and technology for the benefit of society through national and international research and development activities in line with sustainable development goals, aiming to fulfill needs in the fields of environmental management, technology and cleaner production. *TUBITAK MRC ECPI carries out research and development (R&D) projects and related activities in five strategic (thematic) research units: **Air Quality Management, Cleaner Production, Water and Wastewater Management, Marine and Coastal Waters, Solid and Hazardous Waste Management.***
- **Marine and Coastal Research Unit (MCRU)**: currently has 46 personnel, including marine scientists, engineers, IT personnel, **R/V crew members**, and technicians, who are involved primarily in coastal and marine research and management projects. Expertise areas of group are physical, chemical and biological oceanography, sediment geochemistry, GIS, coastal planning and engineering applications.
- The researchers have taken part in a number of national and international scale projects on coastal and marine quality classification, pollution and ecological quality monitoring.

Description of your research interest - TUBITAK MRC ECPI MCRU

- **Marine and Coastal Research Unit (MCRU):** focuses on marine sciences, water quality monitoring, coastal and marine zone management, maritime activities management. The main purpose of this multidisciplinary formation is to develop or provide necessary scientific and technical tools to support emerging policy needs.
- Research Unit have performed studies on the monitoring of marine and coastal seas, ecological/environmental quality classification of coastal and marine waters and the identification of feasible action plans to achieve the identified targets of “good” status. The studies of preparing appropriate data models, collecting, analyzing, visualizing, and are conducted by the RS and GIS Laboratory.
- In addition, the group focuses on applied research to meet the requirements imposed by environmental policies and to support decision making mechanisms. Monitoring, assessment and management of coastal and marine waters in relation to pressures and towards the implementation of ecosystem-based understanding of Turkish seas are the key study areas of the group. **Both maritime and land-based human activities are dealt within the context of pollution, eutrophication, and biodiversity loss in coastal and marine areas.**

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- **Marine and Coastal Research Unit (MCRU)**
- Latest Lab:
 - **Molecular DNA Barcoding Laboratory:** a new laboratory to conduct studies on molecular biology of marine organisms in relation to the objective of “DNA barcoding, Population Genetics and Phylogenetics” has recently been established.
 - **Fingerprint Analysis Laboratory:** Fingerprint analysis is a method which has been used for determining the pollution caused by oil. The analysis has been completed by using of 4 devices. These are: fluorescence spectrophotometer, FT-IR, HPLC and GC-FID.
- Other Lab:
 - Ekotoxicology Laboratory
 - Sediment Laboratory
 - Marine Biology Laboratory
 - Marine Chemistry Laboratory
 - High Performance Modelling Laboratory
- The Institute owns **R/V TUBITAK MARMARA**, a 495-gross ton, 41.2m-long, 9.55m-wide modern research vessel. R/V TÜBİTAK MARMARA is a regional class oceanographic research vessel equipped with scientific infrastructure for observation, analysis systems, and laboratories. The main role of the vessel will be to continuously monitor Turkish Seas to provide a decision support system for the protection of the marine environment.

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Marine and Coastal Research Unit has actively been involved in several National and International projects, some of them are;

- ❑ **SPICOSA** (EU FP6: Science and Policy Integration for Coastal System Assessment),
- ❑ **MISIS** (MSFD: Guiding Improvements in the Black Sea Integrated Monitoring System),
- ❑ **IRIS-SES** (EU FP7: Integrated Regional Monitoring Implementation Strategy in the South European Seas),
- ❑ **HotBlackSea** (EC Joint Operational Program: Integrated Hotspots Management and Saving the Living Black Sea Ecosystem),
- ❑ **MICRO B3** (EU FP7: Microbial Biodiversity, Bioinformatics and Biotechnology),
- ❑ **ANEMONE** (EU-CBC Black Sea Basin Programme: Assessing the Vulnerability of the Black Sea Marine Ecosystem to Human Pressures),
- ❑ **BRIDGE-BS** (H2020-EU: Advancing Black Sea Research and Innovation to Co-Develop Blue Growth within Resilient Ecosystems)
- ❑ **The Integrated Pollution Monitoring and Assessment of Turkish Seas Programme (DEN-IZ)**, supported by the Ministry of Environment and Urbanization is being coordinated by the Research Group since 2014.
- ❑ **National Strategy Projects:**
 - Preparation of **Turkey Marine Environment Strategy Document**
 - Determination of Bathing Water Profiles in Turkish Coastal Beaches
 - Development of **Ballast Water Risk Assessment System**
 - Preparation of **National and Regional Contingency Plans**
 - Constitution of The Emergency/Contingency **Response Centres**
 - Preparation Of Waste Management Plans and **Rehabilitation of Contaminated Marine Environments After Ship Accidents**
 - Dredging Applications and **Environmental Management of Dredged Material** in Turkey
 - **Providing Standardization in Marine Monitorings** (DISSP)

Description of the Organization – TUBITAK MRC ECPI AQMRU

Air Quality Management Research Unit (AQMRU): is working within the framework of “Cleaner Air for Healthier Life”. Mitigation and adaptation studies under the scope of climate change, clean technology applications for the prevention of air pollution, development of measurement tools for air pollutants, air quality measurements and modeling, noise modeling and management are some of the research areas of the Group.

TUBITAK MRC Environmental and Cleaner Production Institute is also the national focal point of Climate Technology Centre and Network (CTCN), which is the operational arm of the United Nations Framework Convention on Climate Change (UNFCCC) Technology Mechanism.

National Projects:

- “Turkey’s Sixth National Communication on Climate Change” was prepared within the scope of **“Preparation of National Communications on Climate Change”** project. Greenhouse gas emission projections and sectorial analyses in Turkey until 2050 have been conducted as well.
- **"Assessment of Technological Needs and Determination of Greenhouse Gas Reduction Potential for Industry in Scope of Climate Change"** was carried out in Turkey from March 2012 to July 2014.
- **Climate Change Action Plans (CCAP)** prepared by local governments or entities which include targets for greenhouse gas emission mitigation and measures to increase the city's adaptation capacity against climate change. In this context, there are two on-going projects of Research Unit.

Project Ideas:

HORIZON-CL5-2022-D1-02-05: Let nature help do the job: Rewilding landscapes for carbon sequestration, climate adaptation and biodiversity support

Actions can address specific ecosystems and/or landscapes on land, freshwater, coastal and marine ecosystems while providing a clear contribution to define the potential use of the “rewilding” approach at regional, national and continental levels.

- **Coastal vulnerability and Coastal Environment Sensitivity Index**
- Identification of fragile ecosystem services in interaction with the marine/coastal environment and socio-economic impact *assessment (The ecosystem-based management approach reveals the need for research in which ecosystems and socio-economic systems work together in evaluating these factors, ecosystem services will be evaluated in a multidisciplinary manner in a holistic structure together with social sciences)*
- **Assessment of Climate Change Impacts on Food Safety and Enhancing the Resilience of Coastal Communities**



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