



**Event title:**

**Conservation of Mediterranean Sea ecosystems under the climate crisis: challenges and adaptive solutions in a sea facing fast tropicalization**

**Event date and time:** November 14<sup>th</sup>, 16:15-17:15

**Location:** The Mediterranean Pavilion

**Lead organization:** Israel Oceanographic and Limnological Research (IOLR), under the auspice of the EU project, FutureMARES

**Session coordinator name:** Prof. Gil Rilov

**Short description:** The Mediterranean Sea is a global hotspot of biodiversity but also of climate change and bioinvasions, both leading to rapid biodiversity shifts. Such shifts become a huge challenge for achieving marine conservation targets set by national and international policies and directives. In the Event, we will present the problems and discuss possible needed adaptive approaches in the implementation and monitoring of Marine Protected Areas (MPAs) and restoration actions in the face of climate change. We will also introduce the EU HORIZON-2020 project, FutureMARES, that investigates the impacts of climate change on marine biodiversity and ecosystem services, and examines relevant Nature-based Solutions (NbS).

**Background:** The Mediterranean Sea is a climate change and bioinvasion hotspot where the populations of temperature-sensitive species are decreasing and even extirpating in fast-warming areas like the Levantine basin, while thermophilic alien species, like rabbitfish and lionfish, flourish. Marine heatwaves are increasing in frequency, extent and magnitude in the last decades, resulting in the increase of mass mortality events of dozens of species. All these impacts lead to a considerable reshuffling and tropicalization of local biodiversity with relatively unknown consequences to ecosystem functioning and services – thus becoming a *fast-moving target* for marine conservation. Current environmental targets such as Good Environmental Status (GES) descriptors developed by different conventions and directives (e.g., the European MSFD) as measures of success for conservation (e.g., MPAs) and restoration efforts, are not yet adapted to this situation. More flexible and adaptive approaches are urgently needed to deal with this climate change challenge. A major mission of the European project FutureMARES is to understand the scale of the problem and offer ways to tackle this challenge, for example, by developing relevant NbS.



**Event objectives**

In this Event, our goal is to expose the problem, discuss the challenges and suggest adaptive approaches and possible solutions including NbS. Three FutureMARES scientists will present novel work and approaches, and then, in a panel with three stakeholders, will discuss several key challenges for Mediterranean biodiversity conservation, including:

- What biodiversity can we effectively preserve at the local, regional, and global scales, as species rapidly move and communities dramatically shift with climate change?
- How to deal with thermophilic alien species in climate and bioinvasion hotspots, where sensitive native species disappear?



- What Nature-Based Solutions can be applied to preserve ecosystem services in climate change hotspots?
- When is it effective to invest in restoration, and when is it not, in the face of rapid ocean warming?

### Event plan

| Time       | Activity  | Speaker   |
|------------|---|---|
| 15 minutes | Welcoming remarks, introduction to the topic using the Levant basin as an extreme example of change and introduction to the FutureMARES project | Moderator and speaker: Prof. Gil Rilov, Senior Scientist, Israel Oceanographic and Limnological Research ( <b>IOLR</b> ), Israel  |
| 15 Minutes | Short lecture – Climate change and Marine Protected Areas in the Mediterranean: situation, challenges and opportunities                         | Dr. Joachim Garrabou, Institut de Ciències del Mar, <b>ICM-CSIC</b> , Spain (on-line)   |
| 10 minutes | Short lecture – Nature-based solutions for climate change adaptation & mitigation in Mediterranean coastal ecosystems                           | Speaker – Dr. Carol Turley, Merit Scientist, Head of International Office, <b>Plymouth Marine Laboratory</b> , UK   |
| 20 minutes | Panel: Stakeholders' view on the topic – 3-minute speed talks by stakeholders, and a general discussion on the way forward                      | Panel participants: – (1) Carole Martinez, Policy Manager of <b>MedPan</b> , (2) Prof. Michael Scoullos, Chairman of <b>MIO-ECSDE</b> , (3) Atef Querghi, <b>UNEP-MAP</b> , <b>SPA/RAC</b> representative |
| 5 minutes  | Final Remarks   |   |