



MedWet

*"My city would not exist without
the wetland surrounding it...
Venice"*

*Piero Lionello - Member of
the Climate Change-SG*

**The Climate change
Specialist Group**
(Climate Change-SG)

The Climate Change Specialist Group is one of the five Specialist Groups constituting the MedWet/STN. It is made up of 9 experts from 7 countries in a wide variety of disciplines, who contribute to different aspects related to climate change.

The Climate Change Specialist Group analyses the future evolution of climate drivers that will impact on Mediterranean wetlands, assesses their carbon stocks and greenhouse gas emissions, and helps policymakers mitigate the impacts of climate change.

**To know more about
the MedWet/STN and
its Specialists Groups :**

<http://bit.ly/MedWetSTN>

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Climate change and the mediterranean wetlands

The role of wetlands in adaptation is underappreciated

Wetlands play a key role in buffering the effects of climate change, thereby supporting climate adaptation and resiliency (Millennium Ecosystem Assessment 2005). Indeed, vegetated and healthy wetlands are among the most effective sinks for carbon on the planet. However, this potential is underappreciated in current policy discussions (Moomaw et al., 2018)¹. The carbon sequestration capacity of Mediterranean wetlands is highly variable among different ecosystems, as are their hydrology and productivity. However, among these, seagrass beds (Blue carbon) are known to be very important carbon sinks.

Wetlands are among the ecosystems that are most strongly impacted by even small changes in climate and resulting changes in hydrologic regimes, in particular through sea level rise and decreased surface and ground water levels.

So far, climate change has mostly been neglected in wetland conservation planning in the Mediterranean region. This was the incentive to establish the Mediterranean Wetland Initiative (MedWet) of the Climate Change Specialist Group, as part of its Scientific and Technical Network (MedWet STN/SG/Climate).

¹ Moomaw W. R. (2018): *Wetlands in a Changing Climate: Science, Policy and Management*. Wetlands. Springer. <https://doi.org/10.1007/s13157-018-1023-8>

The Mediterranean region: a hotspot of climate change

The Mediterranean region is warming faster than the global average, 1.4°C since preindustrial times. This change, along with shifting rainfall and rising sea level severely impacts the region, already suffering from water shortages and overexploitation of water resources.

With current weak efforts to protect the climate, the Mediterranean will be further impacted during coming decades: a) warming will progress faster than the global average; b) rainfall will likely be reduced in most parts; c) summer heat waves will become more severe; d) sea level will rise faster than before; e) extreme events such as droughts, floods, may become more intense; f) future sea level rise will increase the frequency of coastal floods and affect the coastline of Mediterranean deltas and lagoons through increased erosion; and g) many wetlands will run dry, or become temporary.

Many consequences are already apparent and will have a major impact on human livelihoods through changing ecosystems, putting at risk the benefits people obtain from them for the provisioning of food and the conservation of biodiversity. Many wetlands are at risk of disappearing while rare and endangered plants and animals will be threatened in others (Figure 1).

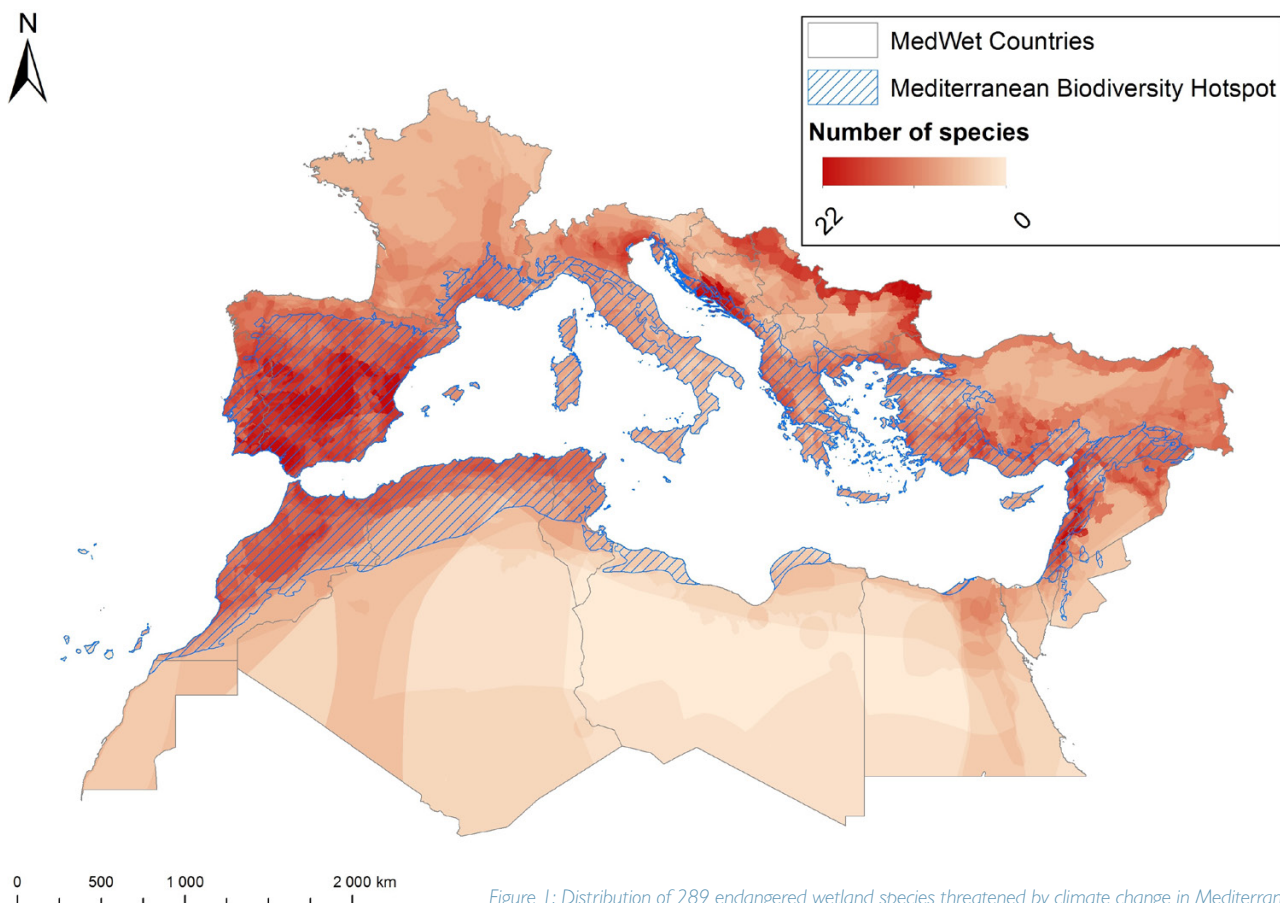


Figure 1: Distribution of 289 endangered wetland species threatened by climate change in Mediterranean countries (source: Mediterranean Wetland Observatory (MWO) using IUCN Red List database).

Healthy wetlands support mitigation and adaptation to climate change

Wetlands sequester some of the largest stores of carbon on the planet, but when disturbed or warmed, they release the three major heat-trapping greenhouse gases carbon dioxide, methane, and nitrous oxide. Protecting wetlands from human disturbance therefore helps to limit the increase in greenhouse gases in the atmosphere (Figure 2, 3).

In addition, droughts impair the ability of freshwater wetlands to deliver other ecosystem services, including improving water quality, water supply, flood control, and storm protection, with severe negative ecological and socioeconomic impacts.

Wetland networks also are key corridors and stepping stones allowing species to move to cooler areas and thus adapt to rising temperatures.

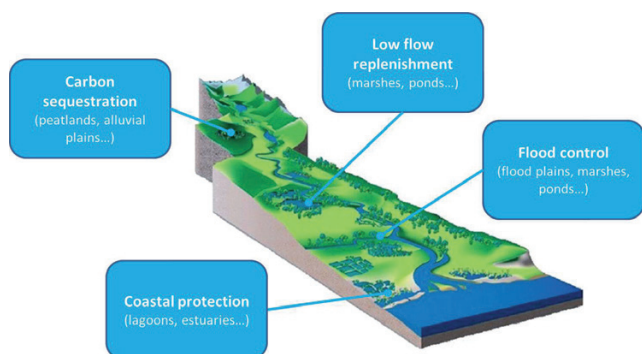


Figure 2: Wetlands act as buffers for climatic change (Source: Dubreuil-Imbert, Plan Bleu)

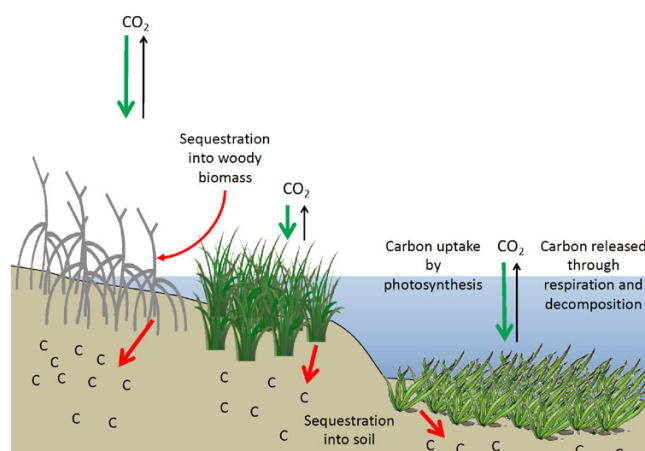


Figure 3: Efficiency of seagrass beds, salt marshes and mangrove forests as reservoirs for carbon: the blue carbon. Photo credit: Howard et al., 2017, *Frontiers in Ecology and the Environment*.

The role of the MedWet Climate Change Specialist Group

The expert group investigates, based on many scientific studies, to what extent wetlands are carbon-sequestering systems, and how their drainage and degradation can release the stored carbon and other GHGs back into the atmosphere.

They propose better management practices that can help mitigate the impacts of climate change and advise policymakers to fully integrate coastal "blue carbon" stocks as part of countries' portfolio of actions to mitigate climate change.