

EL KALA WETLAND SYSTEM

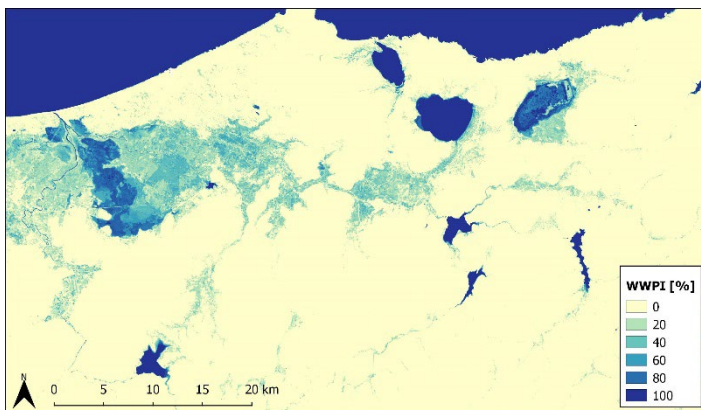
SPOTLIGHT

“[...] the El Kala wetlands [are] an important relict pocket of species of various historical and geographical origin, and highlight the urgency of safeguarding these sites.”

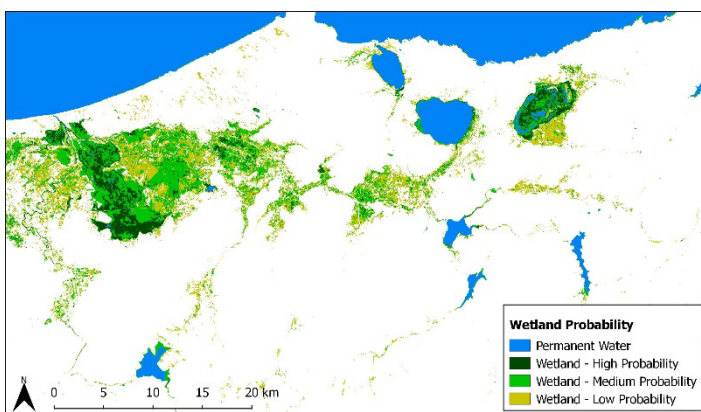
| Samraoui et al. |

WETLAND INVENTORY PRODUCTS

Water Wetness Presence Index | WWPI [%]



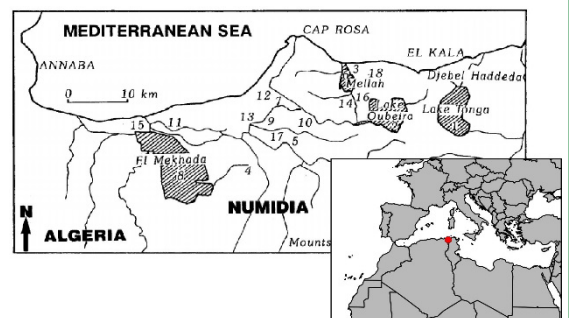
Wetland Probability Map



Description: The two maps show the Water-Wetness-Presence Index (WWPI) and the wetland probability map derived from a time series of Sentinel-2 optical imagery captured between January 2016 and June 2017. The reservoirs are permanently flooded with minor water level changes. The wetlands show WWPI values around 40% and higher indicating seasonally changing water and wetness levels. The agricultural fields that are scattered throughout the floodplain and valleys are only seasonally moist or irrigated indicated by WWPI values around 20 percent. The corresponding wetland probability map marks the natural wetlands with medium to high wetland probability, while agricultural fields are mostly grouped within the low and medium wetland probability classes.

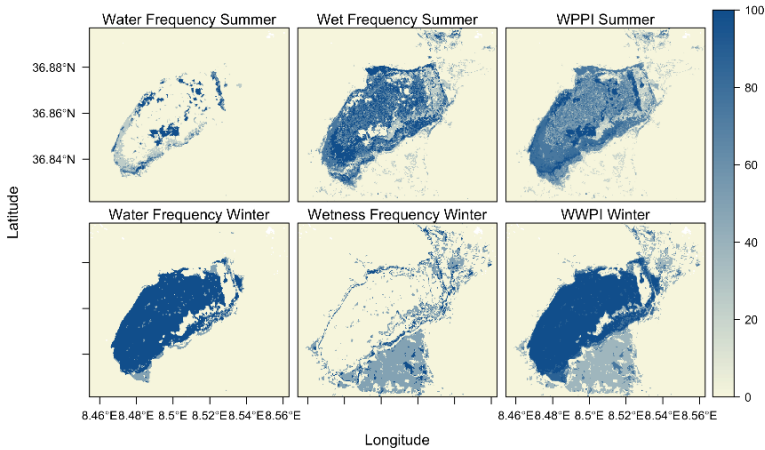
FAST FACTS

- The El-Kala Wetland System is a complex of wetlands, lakes and rivers, marches and sea inlets situated within the El-Kala National Park covering 76'384 ha
- It is one of the four major wetland complexes in the Western Mediterranean
- The area contains 9 Ramsar sites
- The Marais de la Mekhada is a shallow freshwater marsh (0.5-1m depth) within the Mafragh plain that is connected to the Mediterranean Sea through a narrow stream
- There have been several unsuccessful attempts to drain Lake Tonga, which is why it now resembles a large reed bed [1]
- The complex contains the Oum Lâagareb wetland, which is a densely forested floodplain peat land rarely found in the area
- The area is an important nesting and wintering ground for endangered duck and coot species and supports a range of rare plant and animal species
- The wetlands are threatened by human intervention through infrastructure development and excessive water extraction for irrigation



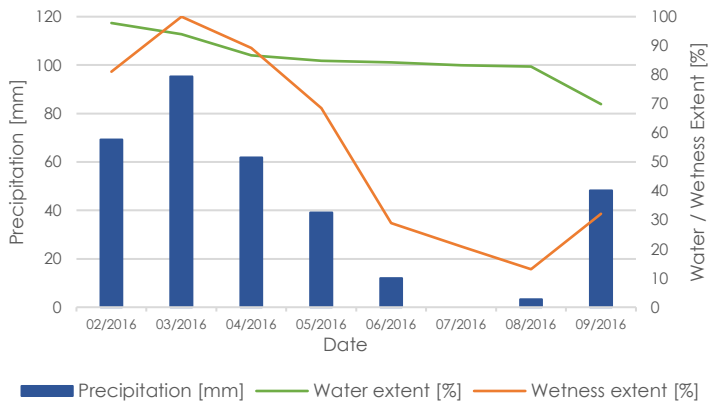
Overview of the El Kala Wetland System located at the border region between Algeria and Tunisia [2]

Seasonal Water and Wetness Frequency of Lake Tonga

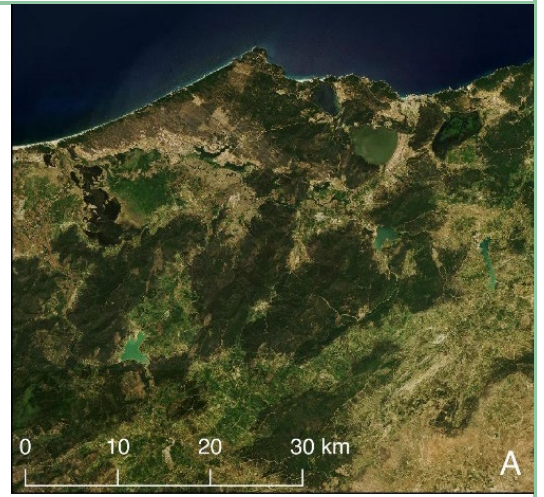


Description: The seasonal water and wetness frequencies of Lake Tonga show strong intra-annual fluctuations. During the moist winter period, the lake is flooded showing very high water frequency values. Wetness is mostly detected within the agricultural fields and along the lake shore. During summer, the water recedes from the lake, but the dense reed bed does not completely dry out.

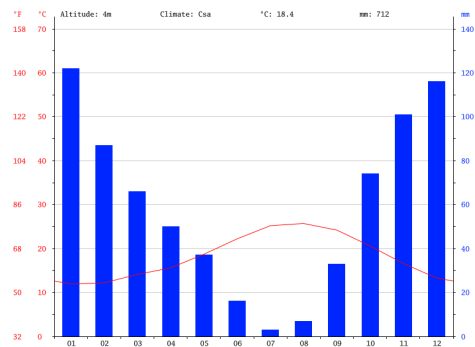
Seasonal distribution of precipitation vs. water and wetness extents



Description: The fluctuations in the spatial extents of open water and wet surfaces follow the seasonal distribution of precipitation. During times of high precipitation, water and wetness extents reach their maximum. In summer, the size of moist surfaces drops below 25% of the annual maximum extent of wet surfaces. The extent of open water decreases until the start of the rainy winter season in October. However, due to the permanent water bodies and the ocean within the study area, its area only decreases about 20 %.



RGB image showing the El Kala Wetland System (Source: Mapbox)



This is the climate diagram of Annaba, Algeria. [3] The region is subjected to a Mediterranean climate with most rainfall occurring during the winter months (Oct – May) During summer, the Sirocco originating from the Sahara brings a strong drying effect. [4]

References

- [1] Smart, M. & Hollis, G. (1990): Ramsar advisory Missions: Report No. 21, Algeria. 943 Technical Report 21, Ramsar Convention of Wetlands.
- [2] Samraoui, B., Segers, H., Maas, S & Baribwegure, D., Dumont, H. (1998): Rotifera, Cladocera, Copepoda, and Ostracoda from coastal wetlands in northeast Algeria. *Hydrobiologia*. 386. 183-193. 10.1023/A:1003538730152.
- [3] <https://en.climate-data.org/location/3685/>
- [4] Benslimane, F., Labar, S., Djidel, M., Hamilton, C. M. L., & Djemai, R. (2015). Assessing of Tonga Lake Water Quality in the coastal basin of Northeastern Algeria. *International Journal of Scientific and Engineering Research*, 6(03), 205-208.

All satellite-based products shown here have been derived from Sentinel 2 imagery. The product development and processing has been performed within the ESA project Globwetland-Africa.

Contact: info@geoville.com