

# ASSESSING BIODIVERSITY CHANGES IN CYPRUS – FIRST RESULTS FROM LONG TERM CIESM MONITORING PROGRAMMES

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## Abstract

Cyprus is involved in the Tropical Signals and JellyWatch Programs of CIESM, providing data on marine biodiversity. Here, we present an update on our progress and some of our results from both programs, with an emphasis on alien species.

**Keywords:** Alien species, Cyprus Basin

Cyprus is the closest Mediterranean island to the Suez Canal, and has been extensively affected by Lessepsian migrants, especially during the last decades. Some of the alien species have already successfully established themselves in the coastal waters of Cyprus.

In the framework of the CIESM Tropical Signals project, which aims to study the tropicalization of the Mediterranean by observing and recording both native and alien species, six stations are being monitored: three in Ayia Napa (Southeast coast) and three in Larnaca (South-Southeast coast). At each station, the CIESM monitoring and recording protocol is being followed: each station is divided into two zones parallel to the shoreline (100m each) with 100m distance between them. Timed observations of 15 minutes were made both in the intertidal (the surf and swash zone, from 0 to 0.5m) and the subtidal zones (shallow waters, 0 to 3m) by snorkeling (Fig. 1). Preliminary results show a total number of 86 taxa of which 13 are alien (one macrophyte, six invertebrates and six fish). Ayia Napa presents higher total abundance and slightly higher percentage of alien species (17,74%) in comparison with Larnaca (15,51%). All alien species that were recorded are Lessepsian migrants.



Fig. 1. Selected sites in Cyprus for the monitoring of marine biodiversity in the framework of the Tropical Signals Program.

Anthropogenic impacts play an important role in the increasing occurrence of jellyfish blooms. Climate change, introduction of non-indigenous species, construction of breakwaters, overfishing and eutrophication, all affect the increase of jellyfish populations to varying degrees. In the framework of the JELLYWATCH Program of CIESM, we study *Medusae* by recording species of jellyfish that are found in all coastal areas of Cyprus. The first results from a four year study (2012-2015) indicate that 11 species of jellyfish occur in the waters of Cyprus, with *Mnemiopsis leidyi* and *Cassiopea andromeda* being the most abundant and most frequently reported species. The majority of jellyfish recorded observations were from the east coast of Cyprus in comparison with the west coast. This might be due to higher temperatures recorded in the east coast. This study gives the first insights for the abundance of jellyfish in Cyprus that will be used for the investigation of the parameters that affect the jellyfish populations.



Fig. 2. NUTS areas in the coastal area of Cyprus for recording jellyfish data in the framework of the JellyWatch Program.

The monitoring of the abundance of alien species and the study of their impact on the native marine biodiversity is necessary for the management and protection of the marine environment of Cyprus. Further research is needed to identify the extent of the impact of each alien species to the native marine biodiversity and how their increasing numbers will affect the marine trophic web.

## References

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