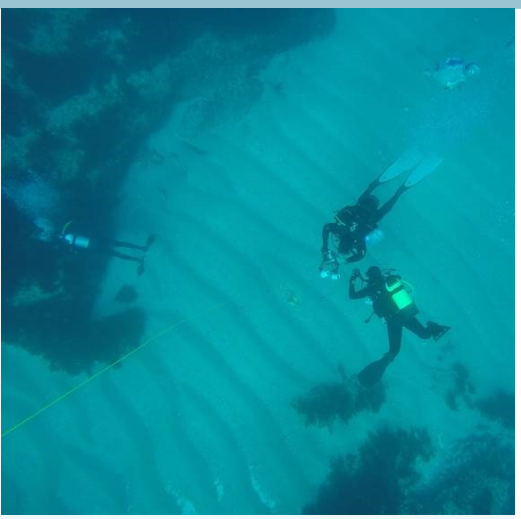
European Commission



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STORY OF THE MONTH

SUPPORTED BY THE **European Maritime and Fisheries Fund (EMFF)**

Survey of alien species in marine protected areas

GENERAL INFORMATION

Member State:
Cyprus

EMFF measure:
Improving knowledge on the state of the marine environment

Keywords:

- Invasive Alien Species
- Marine Protected Area
- Natura 2000
- Environment
- Marine Knowledge
- Data Collection

Operation dates:
2017 - 2018

BUDGET

Total operation budget:
EUR 90,000

EU budget contribution:
EUR 66,500

Operation description

An extensive survey of marine life was conducted in two Natura 2000 marine protected areas off the coast of Cyprus over a 24 month period. It was financed with a contribution of €66,500 from the EMFF budget. The survey identified and quantified the distribution of the native and alien species at the two sites. This information serves as detailed baseline information to monitor future changes in the species present at the sites. The objective is to base the protection and preservation of the marine environment on the best available science.

Cyprus is the EU Member State in closest proximity to the Suez canal. The canal is recognised as the most significant pathway for the entry of alien (non-native) marine species of Indo-Pacific origin into EU waters. This includes fish, crustaceans and algae, which hitch a ride in the ballast waters of large ocean going vessels. Ballast water is typically taken on board in one location, and pumped out at another. It is used to counter the changing weight of cargo on board the vessel. In some cases, the alien species introduced to a new environment are considered as invasive and may be extremely harmful to native marine plants and animals, thriving at their expense.

The two Natura 2000 sites selected for analysis, Cavo Greco and Nissia, lie off the south-east coast of Cyprus. They are considered 'hot spots' for the introduction of alien species. The analysis took stock of both the native and alien species present at six seasonal intervals to establish an annual and seasonal comparative baseline.

INTRODUCTION OF THE BENEFICIARY

Beneficiary name:
Department of Fisheries and Marine Research (DFMR)

Surveys conducted at
Cavo Greco
And *Nissia*
Natura 2000 sites

Further details:
Available via the DFMR webpage

Details

The survey and monitoring took account of all taxa (free living and sessile; water column and benthic; in hard and soft substrates). All organisms were identified to the lowest taxonomic level (species level) and were supported by high definition photographs and videos of the organisms.

All habitat types (soft substrate (sandy expanses), hard substrate (reefs) and seagrass meadows (i.e. Posidonia oceanica) were surveyed over 27 individual sites in six seasonal expeditions over 2 years. For each site, data were collected from depths of 0-5 m, 5-15 m, 15-30m and greater than 30 m.

Results

The project has provided vital baseline information about the two sites and about the presence and distribution of both native and alien species.

The results serve the scientific community and policy and decision-making bodies for the development of marine resource management plans. They help protect biodiversity and a viable and sustainable fisheries sector. They also provide information to support solutions for adaptation to the climate change.

- Higher densities of fish per unit area were recorded at Nissia in all six samplings and in all the habitats except in winter 2018 and autumn 2017, where densities were higher in Cavo Greco in sandy expanses. In almost all seasons, the rocky 'reef' habitat had significantly higher density and fish abundance as well as macrophyte percentage coverage; the sandy expanses had the lowest.
- Of all the species identified, 272 were characterised as native, 45 as alien, 2 as cryptogenic (Aplysia parvula and Ganonema farinosum) and 1 as range expanding (Enchelycore anatina).
- Nissia had a relatively higher alien-to-native ratio compared to Cavo Greco in all seasons.
- Nissia had substantially higher alien-to-native ratio in 2017 but Cavo Greco had a higher ratio in 2018.
- A steady increase in the alien-to-native ratio was observed from the beginning of the survey period to the end. This highlights the need to continue monitoring the biota changes and calls for attention by the management authorities.

Future work

The need to continue monitoring was identified as part of the survey results. This will allow for a more informed estimation of the impacts caused by the arrival, presence and expansion of NIS in these areas.