

Mar Menor Seahorses

by José Luis Alcaide Sanjurjo

A 10-year monitoring program was developed to quantify the population dynamics of the long-snouted seahorse population in the Mar Menor coastal lagoon. Based on 985 underwater visual censuses, we estimated the long-snouted seahorse (*Hippocampus guttulatus* Cuvier, 1829) population size in the Mar Menor lagoon and its reduction in size in the last decades, as well as the effect of eutrophication crises in 2016 and 2019 on the species.

The annual recruitment for the 2013–2020 period was estimated by comparing the relative abundance of early seahorse life stages in the ichthyoplankton. The density ranged from 0.0458 specimens/m³ at the beginning of the sampling period to 0.0004 at the end, showing a statistically significant difference between the three analyzed periods ($H_{g1}=2 = 14.0$, $p = 0.001$).

The long-snouted seahorse population from the Mar Menor lagoon exemplifies the impact of fishing activities and human pressure, especially euxinic episodes and habitat destruction. As a result of this, the Mar Menor population has decreased from several million



Mar Menor coastal lagoon on the east coast of Spain



*We can see a pair of seahorses, of the species *Hippocampus guttulatus*, where the male (the one on the right) is clearly pregnant and about to give birth.*

NIKON D-200, SUBAL + INON Z240, 1/160 f13, ISO 100 - 40 mm





specimens to a few thousand, in only three decades. This species showed considerable resilience, the seahorse population began to recover once fishing activity stopped. In contrast, the long-snouted seahorse showed high vulnerability to habitat loss and an episodic flooding event. Adult seahorses showed preferences for

highly complex habitats, especially *Caulerpa prolifera*–*Cymodocea nodosa* mixed meadows and habitats of high complexity and anthropogenic origin, such as harbors, jetties, or breakwaters.

In contrast, juvenile seahorses preferred monotonous seabeds with low complexity, such as the sandy

The first cause of seahorse mortality is caused by humans. the extraction of specimens and pollution, which also causes the disappearance of their habitat.

NIKON D-7200, SUBAL + INON Z240, 1/200 f9.0, ISO 200 - 20 mm

beds that are characteristic of the Mar Menor lagoon littoral.

This organization is mainly made up of professionals and volunteers, who have been specifically developing activities to monitor marine diversity, environmental education and awareness about syngnathid populations (*Syngnathidae* family) and their underwater habitat in the Mar Menor lagoon, as well as like other species and marine habitats in general.

Since 2006, we have carried out awareness-raising and environmental education actions on the species, continuously developing periodic sampling and monitoring of seahorse populations through citizen science, in order to obtain data on the species that promote management and conservation actions. Among them, its possible inclusion in the Spanish Catalog of Endangered Species.

The coordinated actions being carried out are making it possible to define a basic reference framework

to complete the management, conservation, monitoring and educational dissemination actions of the natural marine and underwater values of the Mar Menor lagoon and its area of influence in general, and in particular, report on the status and evolution of the taxa *Hippocampus guttulatus*, *Hippocampus hippocampus*, *Syngnathus abaster* and *Syngnathus typhle* and the status of their populations.

These actions are contributing with the provision of basic information about their status and their relationship with the socio-economic development of the area, carrying out educational actions, awareness-raising, research, social participation, through citizen science and sustainable entrepreneurship in the environment of the Mar Menor, as well as other actions that can be developed for the well-being and conservation of the marine environment.

In the last of our scientific publications, written by our volunteer scientists, Miguel, Cristina, Juan Diego and José Antonio, they include a summary of all the work carried out to date. This is *The Journal Fish Biology of the United Kingdom*, where the decline of the seahorse is highlighted through its study:

<https://onlinelibrary.wiley.com/doi/abs/10.1111/jfb.15564>



We can see how they try to camouflage themselves with the environment. On many occasions, the couple remains together for some time until they are sure that the offspring is ready. Then they say goodbye and everyone is left to their own devices.
 NIKON D-7200, SUBAL + INON Z240, 1/400 f20.0, ISO 100 - 20 mm



This seahorse, barely a centimeter long, is a new recruit. At this age you cannot tell if it is male or female. NIKON D-200, SUBAL + INON Z240, 1/160 f9.0, ISO 100 - 85 mm



All this effort sets its goal on the inclusion of an animal discontinued due to lack of data, in the National Catalog of Endangered Species, where if it is achieved, a program of recovery, reproduction and reintroduction into the environment, as well as care, will begin by law. , monitoring and recovery of its habitat, as damaged as it is where it currently almost survives.

The data obtained during these years is completely alarming, due to the reduction of 99.9% of individuals from its entire population in the coastal lagoon. The volunteers who make up the association have been able to personally witness this painful decline, as well as that of their peers.

They have also been able to observe the drastic change that the lagoon is undergoing. It is still an acquisition of real

knowledge of these changes in a specific place, in a time of global climate change. The observations of these changes are seen remarkably almost day by day and the data obtained are discouraging for the volunteers who observe it firsthand.

You can contribute to the study through synergies with other organizations that carry out similar scientific studies or by subscribing through our website with financial contributions as trusts or partners.

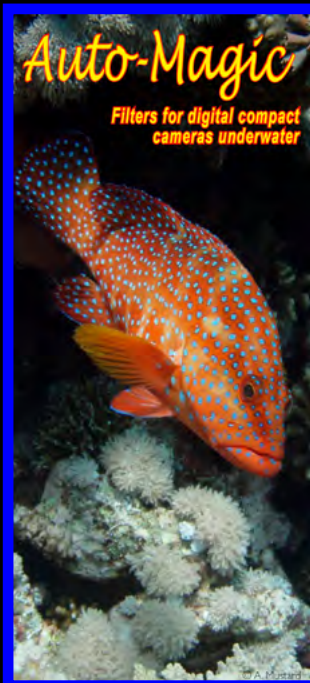
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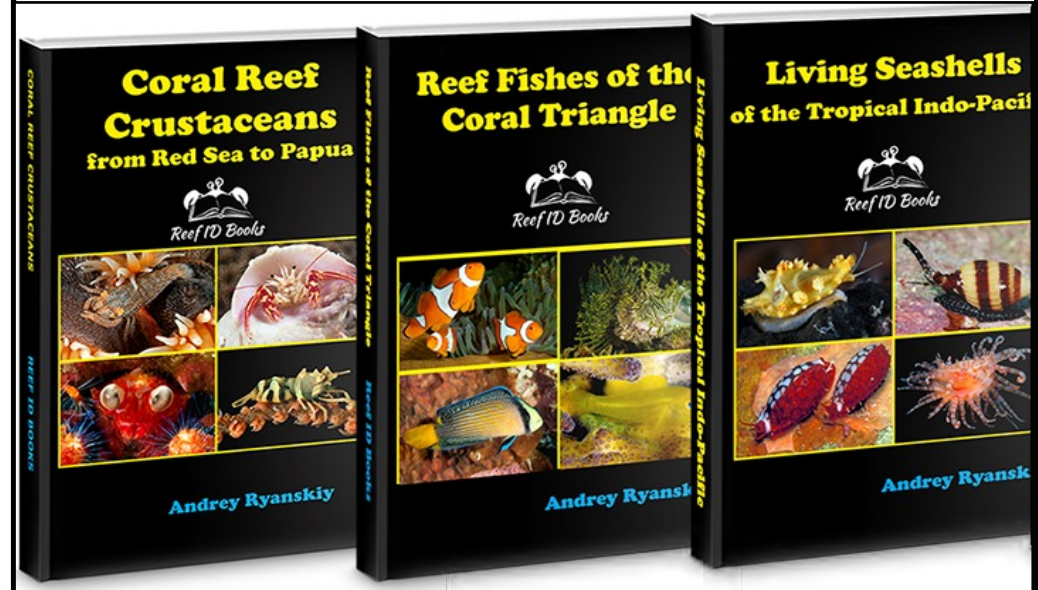


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