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The Hippocampus Marine Institute's special focus positively influences the Greek Marine Ecosystem

There are 47 species of the seahorse, the extraordinary and charismatic marine creature within the scientific genus, *Hippocampus* (in Greek, *hippos* is "horse" and *kampos* is "sea monster").

Over the past decade, 14 additional species have been discovered; the seahorse is a fascinating creature that is truly like a small dragon, however, the identification is always challenging as seahorses have the incredible ability to change their colour and shape in order to blend in with their environments.

The Hippocampus Marine Institute is a non-profit organization whose main focus is the study and protection of seahorses. The institute was created by the same people who have passionately worked all these years studying the seahorses, and bequeathed the results of their efforts to the institute.

It is an honor to welcome Mr. Vasilis Mentogiannis, one of the founders of the Institute, to share with us some of the benefits the Institute is bringing to the Greek waters.

Tell us Mr. Mentogiannis, about the moment you decided to dedicate your time to saving the seahorses.

In November 2007, we visited Stratoni as Marine Antiquities Ephorate diving crew staff members, to perform an underwater inspection for the mine company harbour installations. After finalizing the underwater inspection of the port, we decided to continue with our exploration and entered the water at "Argiro's" stream. While underwater, we spotted our first seahorse. The excitement was intense, as the seahorse we encountered was of a species that is quite rare. When we got back to Athens, we decided to visit this spot again to see if our first encounter would be repeated. When we returned a few months later in 2008, we indeed, had the same experience; there were a plethora of seahorses living in a hypertrophic, underwater habitat! We asked the locals if they knew of their existence. The fishermen in Stratoni's fishing harbor were, and even showed us numerous specimens that had been accidentally caught in their nets (something that happens often, unfortunately).

How rare is the specimen of Seahorse you encountered? Where can we find the latest documentation on seahorse populations?

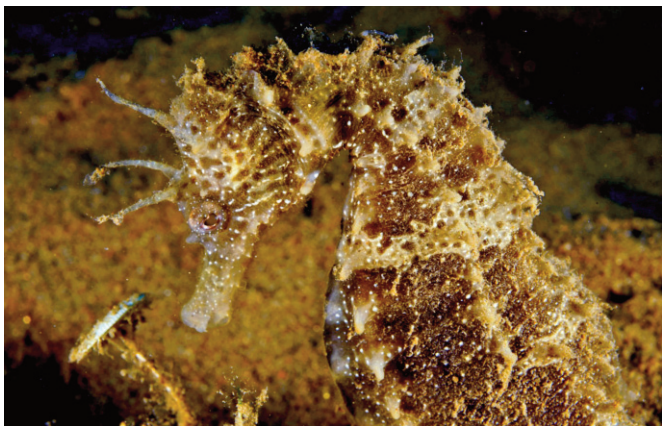
Seahorses have been listed as "Vulnerable" on the Red List of Threatened Species, of the International Union for Conservation of Nature (IUCN), since 1996. Since 2003, seahorses have been categorized as "Data Deficient" worldwide, with the exception of the Mediterranean species which was re-classified as "Near Threatened" in 2016. The latest documented populations of seahorses show they are in the Mediterranean Sea in Stratoni, Spain, Italy, and France and a population also exists in the Atlantic Sea in southern Portugal.

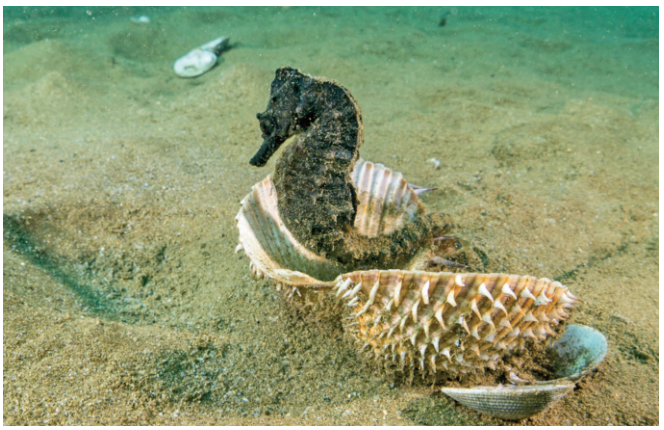
Why did you decide to conduct research specifically in the Chalkidiki, Stratoni area?

We aren't aware of any other areas in Greece where these particular seahorses can always be spotted. It's rare even to see them like this in the Mediterranean. For the past decade, in this specific area of Chalkidiki, Stratoni, we have always encountered this magnificent phenomenon.

What's even more unique, is that we occasionally find both of the seahorse species normally found in Greek waters: the *Hippocampus hippocampus* and *Hippocampus guttulatus*.

Over the past ten years, we have been systematically monitoring, observing, taking measurements and water and sand samples, conducting surveys and many other initiatives. We have tried to establish the "Citizen Science" by sharing this spectacular Phenomenon through many press publications.







The resulting effort was the creation of the marine research center, specifically for the monitoring and protection of the seahorse.

What is the current status of the marine ecosystem in the Stratoni area? Have you taken any actions so far?

After the natural disaster in 2010, the marine plants (phanerogams), which are the seahorses' natural habitat, mostly disappeared; fortunately, their population has been slowly recovering since then. Seahorses are a particularly slow-moving species, preferring to stay attached to a particular substrate using their tail. For this reason, we placed a meandering rope along the seafloor offering them a secure place to attach to. We also placed fake aquarium plants mimicking an underwater garden, and other structures, creating extra shelter for them to use and latch onto. The initial results of this experiment were quick and impressive, as many seahorses colonized the artificial habitats immediately, and have remained there. These artificial habitats have been placed 7 to 13 meters deep within a 50m x 50m square area, delineated on the surface by four buoys. This area is vulnerable to fishing because the gear could cause damage to the habitat and the species themselves. Therefore, we advise fishing is avoided in this area. We believe that the protection and overall communication of this rare population of seahorses in Stratoni will benefit the whole area by creating an underwater "theme park" focused on this mythical, dragon-like underwater species.

As an additional activity at the Institute, you launched the International Marine Biology Summer School. Could you tell us more about this?

The 1st International Marine Biology Summer School took place in May of 2019, with the main focus being the Hippocampus of Stratoni Colony. It was attended by 19 participants, including our Institute's staff. The Summer School was organized by the Hippocampus Marine Institute, the Centre of Marine Sciences at the University of the Algarve, Portugal in cooperation with international seahorse protection organizations, Project Seahorse and I-Seahorse. The research aimed to investigate the phenomenon of the seahorse colony and its localization only in this small area, estimate their numbers, and complete filming for a documentary utilizing the visual material collected over the years.

Have you encountered any technical difficulties?

Yes, one of the biggest difficulties we experienced was in scientifically proving and documenting the seahorse populations. We had to cover a large underwater area and take a multitude of measurements. The Freedom computer, which each diver from the institute uses, helped incredibly with its O-led big screen. It was very easy to use and provided the data we needed with the single push of a button.

Which equipment did you use?

We used a lot of equipment from many manufacturers, but the most critical was the Liberty Rebreather, as we could make observations that couldn't be done with the open-circuit scuba. The use of this rebreather is also ensured absolute silence so we didn't disturb the underwater environment.

What do you appreciate most about the equipment?

The most important features of underwater equipment are their reliability, user-friendliness and state of the art technology, as it can be very easy to make mistakes under pressure. The SOLO Analyzer is an excellent example: it's very easy to use and exhibits cutting-edge technology.

What are your plans for the future?

We plan to continue monitoring the area, place more artificial constructions (mainly ropes and metal cages) underwater, and install underwater sensors and cameras for data collection. Also, we would like to raise awareness for the elimination of fishing, build our international collaborations and expand the scientific documentation for the colony.

Thank you, Mr. Vasilis Mentogiannis, for taking the time to share the Hippocampus Marine Institute's exceptional efforts with us.