

Imported aquarium fish wreaking havoc on ecosystems

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Alan Deidun, marine biologist and associate professor at the University of Malta's department of geosciences, has appealed for regularising the tropical aquarium trade in the interest of stopping alien species from establishing themselves and spreading where they can cause considerable damage. Deidun has been researching the topic of marine alien species for the past 10 years, having published extensively on the same topic in a number of international academic journals.

“There are a number of reasons why alien species might end up in the Mediterranean, including shipping (ballast water and fouling), canals, aquaculture and offshore artificial structures, but an unregulated Aquarium Trade could essentially mean that imported exotic and eventually unwanted fish might end up in our seas,” Deidun said, explaining that certain species could potentially wreak havoc on local marine ecosystems.

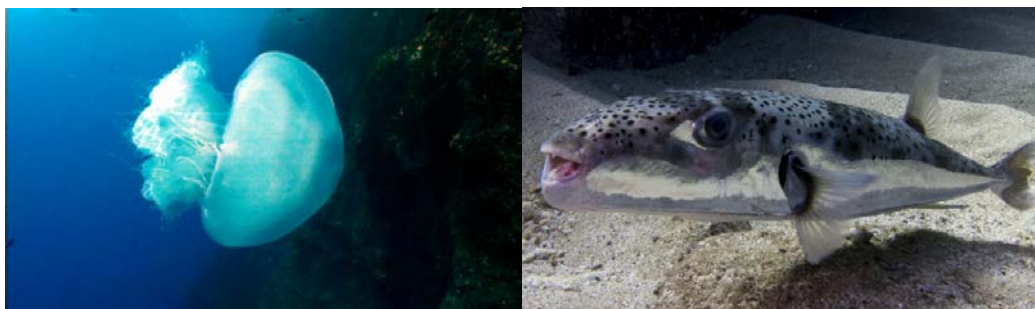
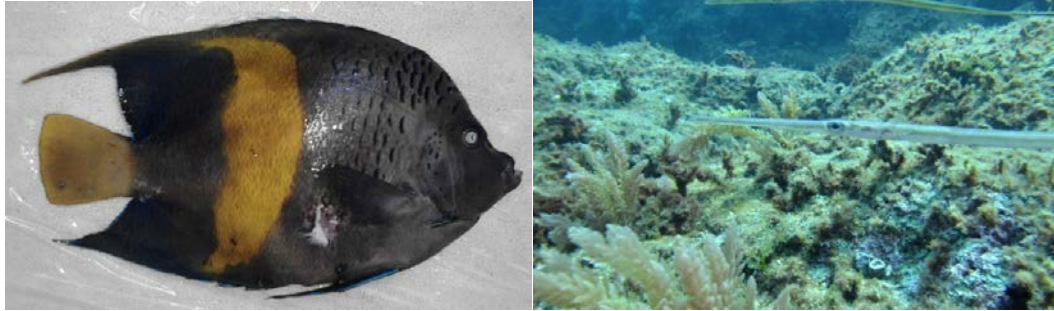
Deidun explained that the absence of regulations could essentially mean that imported and eventually unwanted fish end up in our seas, potentially wreaking havoc on existing ecosystems due to an absence of predators to keep them in check and stop them from depleting other fish stocks.

Although figures are hard to come by, a parliamentary answer in 2015 had shown that some 796,555 exotic animals were imported between 2013 and 2015, with the largest proportion of them being tropical fish.

Deidun explained that enthusiasts might purchase tropical fish and then decide to set them free in our seas for some reason or another, in the mis-skewed belief that they are actually contributing to the biodiversity of our seas. Although such actions might seem commendable, Deidun cautioned that certain species could spell trouble for endemic species, humans, and ultimately fisheries.

“Alien species can be either non-invasive, making occasional appearances, but never really posing any risks, or they can be invasive, and that's where the real trouble lies,” Deidun explained.

One such fish is the impressive but venomous lionfish. Specimens of the species, which originates in the Indian and Pacific Oceans, have been seen throughout large swathes of the Eastern Mediterranean, reaching high densities along the Lebanese and Cypriot coasts, for instance, and being sighted as far west as Rhodes. Recent reports have suggested that the much maligned fish seems to have made it to our shores too.



“There have only been rare sightings so far,” Deidun said, adding that , if really present in local waters, might have been released from an aquarium rather than migrating from the east of the Mediterranean.

"It's not so unfeasible to point the finger at an aquarium release when one considers

that the species is regularly sold locally in tropical aquarium shops and that there have been a number of other marine aliens introduced into the Mediterranean in the past as a result of such releases, chief amongst them being a strain of killer alga (*Caulerpa taxifolia*) which was first recorded in 1984 in waters off the Oceanographic aquarium in Monaco."

"The fish is typically a very slow moving and slow breeding species, and since it was first seen in the Mediterranean in 1991, I am inclined to believe that the species may have been released in Maltese waters by aquarium enthusiasts rather than through natural migration," he said.

Using the blue cornet fish, allegedly the most successful alien fish invader of the Mediterranean, Deidun said that the species could be used as a case study to justify his stance about the lionfish. "This is a fast-moving fish, contrary to the lionfish, and it took seven years to colonise the entire breadth of the Mediterranean," he explained.

Deidun explained that the fish, although beautiful to see, should be treated with caution given that stings from its dorsal spine, although rarely fatal to humans, could cause extreme pain, vomiting and respiratory paralysis.

"The real danger of this species is of course not in the immediate sense," Deidun added. "Sadly, the fish can compete for resources with endemic species like the dusky grouper (*Cerna*), a very popular and commonly eaten species."

He added that the fish was particularly dangerous because there are currently no known predators in the Mediterranean, meaning that the species could continue to expand largely unchecked, was a voracious predator and avid reproducer.

"A similar situation occurred in the Caribbean, where the lionfish took over marine ecosystems and caused a depletion of other species," he said, adding that the spread had prompted campaigns for fishermen to catch the fish and for it to become a delicacy in the countries in question in an attempt to quell further spread.

Deidun pointed out that the species could also act as a deterrent to tourism, with bathers fearing beaches because of the presence of the species., although the same species was very appealing to divers. He stressed the fact however that there for now there was no cause for alarm as the species had not settled in our waters.

Deidun said that although lionfish were perhaps one of the most recent additions, Maltese waters were host to a number of other species that have had less than favourable impacts.

"The nomadic jellyfish in Israel and the Silver-cheeked toadfish in Turkey, could be taken as examples of the potential harm that alien species could cause," he said.

He explained that the jellyfish had caused clogs in water-cooling systems used in power stations in the country as well as causing closures of beaches. The toadfish on the other hand, had caused extensive damage to fishing gear, and subsequent losses in the industry in Turkey.

“It is essential for people to know the possible effects of alien species on local economies like fisheries, as well as tourism, not to mention, whether these species can be toxic when eaten or touched,” he said, stressing the irresponsibility of setting tropical species free in local waters.

The professor added however, that the presence of alien species could not always be helped. Indeed, he pointed out that the majority of alien species in the Mediterranean, had ultimately made it through because of man-made activity or through openings linking the Mediterranean to other seas.

“It is believed there are some 1,000 marine alien species in the Mediterranean, ranging from algae, to fish, crabs and jellyfish,” Deidun said, pointing out that the species had doubled since the Suez Canal was widened in 2015.

Interestingly however, Deidun pointed out that it is only species that make it into the Mediterranean through the man-made Suez Canal that are considered “alien”.

“Given that the other openings like the Strait of Gibraltar are not man-made, fish and other species originating from the Atlantic Ocean and then establish themselves in the Mediterranean are considered as merely extending their range,” he said. “These species are native of tropical areas of the Atlantic, such as waters off western Africa,” he continued.

Asked whether any of the latter species were harmful or invasive species, Deidun said that most of these species weren’t harmful, except for the much-maligned jellyfish known the Portuguese man o’war.

Deidun explained that, in 2015, a census of local marine alien species conducted by the Department of Biology at the University of Malta concluded that the total number of confirmed aliens from our waters was 73. Since then, in the space of one year only, that number has been bolstered by at least 6 or 7 new confirmed arrivals and that he was working closely with the Department of Fisheries in raising awareness about the issue with local fishermen as well.

The professor added that besides the aquarium trade, the biggest culprit for spreading alien species was the shipping industry.

“Larval forms are small enough to get stuck in the ballast water in ships and then released into the sea, or they can attach to the sides of the vessels as fouling organisms and then proliferate in other waters if the conditions are right, with harbours and marinas being major hotspots of such alien species introductions” he said.

Deidun explained that the situation in the Suez Canal was further complicated due to the fact that there are no salinity barriers, in the form of locks, in the canal, as there is

in the Panama Canal for instance, which essentially means that they can travel freely between the seas.

Although not much can be done to control the species that have already made it into the Mediterranean and that closing off the Suez Canal was definitely not on the cards, Deidun points out that the creation of salinity barriers, or even installing equipment that creates bubble walls at the opening of the Suez Canal in the Mediterranean, could ultimately prevent certain species spreading into the Mediterranean.

“Like the lionfish, some invasive and particularly voracious species could have detrimental effects on endemic species, tourism and fisheries,” he said, pointing out that the effects of the nomadic jellyfish in Israel and the Silver-cheeked toadfish in Turkey, could be taken as examples of the potential harm they could cause.

Deidun explained that the species, both present in Malta but in much lower numbers, had caused clogs in water cooling systems used in power stations and beach closures, as well as commercial losses due to damage to fishing equipment respectively.

Any sightings or captures of presumably new species should be notified to Prof. Alan Deidun and his colleagues on alan.deidun@um.edu.mt or on 79604109.

http://www.maltatoday.com.mt/lifestyle/environment/67903/imported_aquarium_fish_wreaking_havoc_ecosystems#.V6ba07h9672