Mediterranean most threatened sea on Earth

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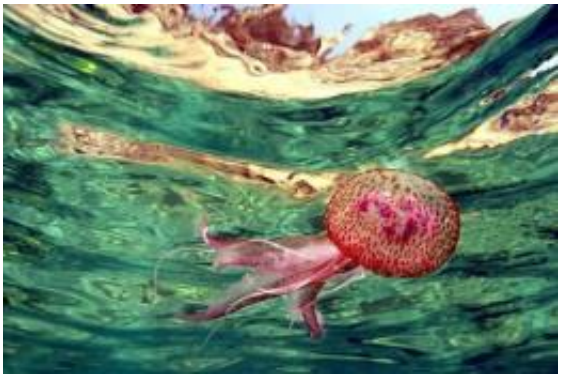

A jellyfish swims in the Mediterranean Sea. The Mediterranean Sea's exquisitely rich mix of flora and fauna is more threatened than marine life anywhere else on Earth, according to a landmark scientific survey released Monday.

The Mediterranean Sea's exquisitely rich mix of flora and fauna is more threatened than marine life anywhere else on Earth, according to a landmark scientific survey released Monday.

In none of the other 20-odd ocean areas examined during the decade-long study does biodiversity face as bleak a future.

Habitat loss, pollution and overfishing have already take a heavy toll on the planet's largest enclosed sea, and now climate change impacts have started to kick in as well, the study found.

The Mediterranean also has nearly three times as many invasive species

when compared to the second-most infested region.

Drawing on the work of hundreds of scientists, the Census of Marine Life is the largest global research programme on marine diversity ever undertaken.

Results were rendered into more than a dozen studies published in the peer-reviewed journal PLoS ONE.

From Antarctica to the tropics, the Census uncovered thousands of previously unknown marine creatures across the planet, and confirmed that there are hundreds of thousands -- perhaps more than a million -- yet to be discovered.

The Mediterranean is among the five most generously endowed ocean zones, with an estimated 17,000 species ranging from microscopic, single-cell algae to loggerhead sea turtles and bluefin tuna.

Only oceans around Japan and Australia boast a greater variety of aquatic life.

But at the same time the Mediterranean -- encircled by dense concentrations of humanity and visited by 200 million tourists each year -- was shown to be suffering from decades, centuries and even millennia of exploitation.

Pollution along with rampant coastal development have decimated many habitats critical to marine diversity, including seagrass meadows and coral reefs.

Chemical runoff from industry and large-scale agriculture have starved some areas -- especially the Adriatic's sea-within-a-sea -- of oxygen, killing off many forms of wildlife and giving rise to toxic algae blooms

known as red tides.

The 30-year crash of Atlantic bluefin tuna, which breeds in the Mediterranean, is only the most visible example of another serious strain on the sea's ecosystems: overfishing.

The depletion of tuna and other top ocean predators, for example, has helped drive a jellyfish explosion disruptive of aquatic food chains and the region's tourism.

Some of those unwelcome invertebrates -- such as the American comb-jelly -- have come from afar.

After hitching a ride in the ballast water of oil tankers in the early 1980s, the comb-jelly spread up into the Black and Caspian seas, outcompeting native species all along the way.

Some four percent of the Mediterranean's life forms are alien, far more than in any other region.

Not all invaders are destructive, and some have even become important commercial species, such as Erythrean prawns.

But the impact on delicately balanced ecosystems, experts agree, is unpredictable at best.

The most important threat looming on the horizon is increasing water temperatures and acidification brought on by global warming, the studies found.

At one end of the spectrum, cold- and deep-water species will likely find their habitats shrinking.

"Because they cannot move farther northward, they may dramatically decrease or even be at risk of extirpation," said Dalhousie University professor Marta Coll and colleagues in the report on biodiversity threats, citing diminishing stocks of deep-water white coral as an example.

Given than an estimated 75 percent of the region's deep-water species are unknown, it seems probable some will disappear before they can be identified, they said.

At the other end, non-native warm-water species have been moving into the Mediterranean for decades from the Red Sea through the Suez Canal, a process known as "tropicalisation."

"There is the need to develop comprehensive analysis of conservation and management initiatives to preserve Mediterranean biodiversity," the researchers conclude, adding that the Mediterranean can been seen, in terms of conservation efforts, as "a model for the world's oceans".

"Although much is known about individual threats, knowledge is very limited about how multiple impacts will interact," the added.