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LETTERS

Brazil policy invites marine invasive species

Ricardo J. Miranda^{1,*}, José A. C. C. Nunes², Joel C. Creed³, Francisco Barros⁴, Raphael M. Macieira⁵, Robson G Santos¹, Gisla...

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Take care of the old shipwrecks before sinking new ships

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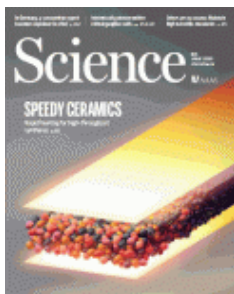
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(1 May 2020)

In their Letter “Brazil policy invites marine invasive species”, Miranda et al. [1] criticizes the Brazilian Federal Government plan to sink 1200 artificial structures including ships. We endorse the view that such activities pose a high risk of spreading invasive species which include, among others, sun corals (*Tubastraea* spp.) [2, 3] along the Brazilian coastline. Moreover, in 2020 when diving on the Brazilian equatorial margin we observed the coral *Tubastraea tagusensis* growing on a historical shipwreck (SS Baron Dechmont) from World War II (sunk in 1943) at a depth of approximately 32 m. This observation of invasive expansion was found 200 km east of the last record, which was also found on an old shipwreck (SS Eugene V.R. Thayer) from WWII (sunk in 1942) in 2016 at a depth of 20m [4]. These ships in shallow and mesophotic waters were inhabited by well-established communities for decades. Nonetheless, *Tubastraea* corals have recently invaded these shipwrecks, reaching high densities [4]. The South Atlantic region has ~ 544 vessels from WWII, most of them unexplored. This large number of shipwrecks is the result of a blockade by American, British, and Brazilian navies during WWII against the German raiders, U-Boats and Italian submarines [5, 6]. In addition to being a historical heritage site [7], and a possible source of contamination [8], some of these shipwrecks may also help the expansion of *Tubastraea* corals into the Atlantic Ocean [9, 10, 11]. These results are a call to map and study historical shipwrecks in order to manage the invasive *Tubastraea* corals at a national and international level in the Atlantic basin. New [1] and old shipwrecks represent high ecological risks, as they facilitate the spread of invasive marine species to the Caribbean Sea, Gulf of Mexico, Macaronesia, Brazil and Africa.

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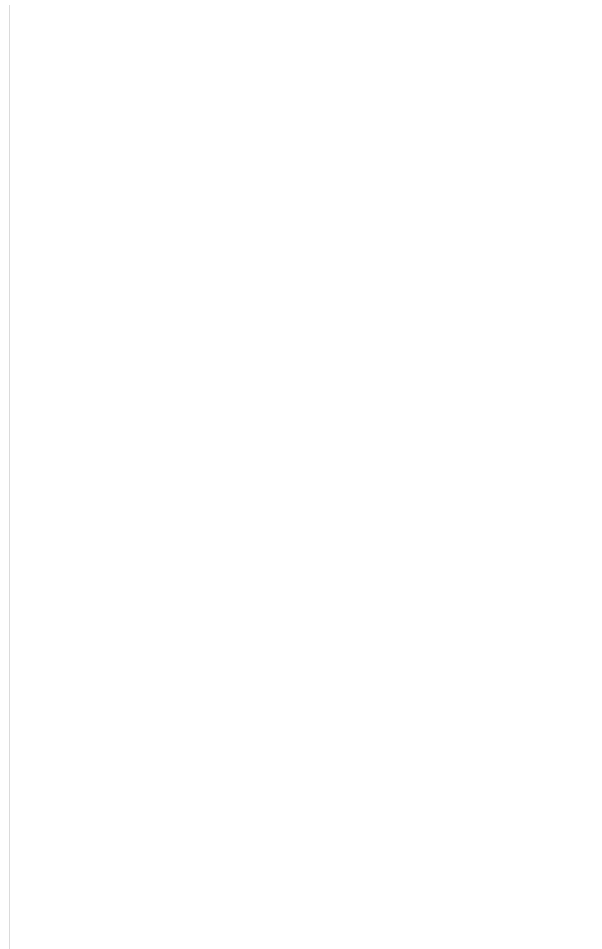
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