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CAN HALOPHILA STIPULACEA OUTCOMPETE CYMODOCEA NODOSA? A CASE STUDY OF A MEDITERRANEAN SHALLOW WATER HABITAT

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ABSTRACT

The tropical seagrass Halophila stipulacea (Forsskål) Ascherson entered the Mediterranean Sea through the Suez Canal more than 100 years ago. In the coastal-marine ecosystems the spatial niche of H. stipulacea is often overlapped with that of native Mediterranean Sea seagrasses and therefore it might out-compete them. On the basis of previous observations, we monitored for one year a Southern Mediterranean shallow water habitat (North-Western Sicily Island, Italy, Southern Mediterranean Sea), where H. stipulacea co-occurred with the native seagrass Cymodocea nodosa (Ucria) Ascherson. In this paper we compare sites with (impacted sites) and without H. stipulacea (non-impacted sites) to analyse the variation of the shoot density of C. nodosa in presence or absence of H. stipulacea and, besides that, to measure H. stipulacea biometric features of leaves as fitness indices of the species. Significant differences in C. nodosa shoot density were observed according to the presence or absence of H. stipulacea, with the lowest values observed in sites where it co-occurred with H. stipulacea. We hypothesized that the dense rhizome-sediment net created by H. stipulacea can interfere with C. nodosa growth, pushing down its rhizomes in the anoxic layer. In January 2011 a significant decline of H. stipulacea was observed, maybe related to unfavourable environmental conditions (e.g. hydrodynamism, turbidity) and, unexpectedly, the plant totally disappeared in April 2011.

KEYWORDS: Halophila stipulacea, non-indigenous species, Cymodocea nodosa, seagrasses, Mediterranean Sea, shallow water habitat