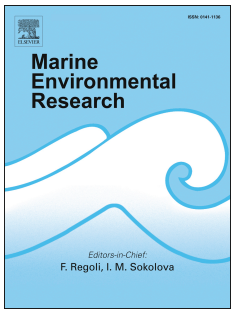
Accepted Manuscript



Species-specific response to sulfide intrusion in indigenous and non-indigenous Mediterranean seagrasses under stress

Eugenia T. Apostolaki, Marianne Holmer, Veronica Santinelli, Ioannis Karakassis

PII: S0141-1136(17)30431-2

DOI: 10.1016/j.marenvres.2017.12.006

Reference: MERE 4416

To appear in: *Marine Environmental Research*

Received Date: 11 July 2017

Revised Date: 26 October 2017

Accepted Date: 8 December 2017

Please cite this article as: Apostolaki, E.T., Holmer, M., Santinelli, V., Karakassis, I., Species-specific response to sulfide intrusion in indigenous and non-indigenous Mediterranean seagrasses under stress, *Marine Environmental Research* (2018), doi: 10.1016/j.marenvres.2017.12.006.

Species-specific response to sulfide intrusion in indigenous and non-indigenous Mediterranean seagrasses under stress

Eugenia T Apostolaki [1*], Marianne Holmer [2], Veronica Santinelli [3], Ioannis Karakassis [3]

[1] Institute of Oceanography, Hellenic Centre for Marine Research, PO Box 2214, 71003, Heraklion, Crete, Greece

[2] Department of Biology, University of Southern Denmark, Campusvej 55, 5230 Odense M, Denmark

[3] Marine Ecology Laboratory, Biology Department, University of Crete, PO Box 2208, 71409, Heraklion, Crete, Greece

* Corresponding Author. Tel.: +30 2810 337714; Fax: +30 2810 337822. E-mail address: eapost@hcmr.gr (E.T. Apostolaki)

Abstract

We explored the sulfur dynamics and the relationships between sediment sulfur and nutrient pools, seagrass structural and physiological variables and sulfide intrusion in indigenous (*Posidonia oceanica*, *Cymodocea nodosa*) and non-indigenous (*Halophila stipulacea*) Mediterranean seagrasses at six sites affected by cumulative anthropogenic pressures to understand the factors controlling sulfide intrusion in seagrass. Sensitive indicators of seagrass stress (leaf TN, $\delta^{15}N$, TS, $F_{sulfide}$) were increased at several sites, implying that seagrasses are under pressure. Sulfide intrusion was not related to sediment TOC but it was negatively related to shoot size and below-ground biomass. Sulfide intrusion in seagrass tissue was high in *P.*