{rokbox title=|Caulerpa racemosa :: Foto: Salud Deudero, COB-IEO| thumb=|images/stories/ieo/imagenespublicaciones/caulerparacemosa_thumb.jpg|}images/stories/ieo/imagenespublicaciones/caulerparacemosa.jpg{/rokbox}

S. Deudero, A. Box, J. Alós, N.L. Arroyo and N. Marbà, (2011). **Functional changes due to invasive species: Food web shifts at shallow *Posidonia oceanica* seagrass beds colonized by the alien macroalga *Caulerpa racemosa***

.

Estuarine, Coastal and Shelf Science. Volume 93, Issue 2, 10 June 2011, Pages 106-116.

Abstract: Multiple stable isotope analyses were used to examine the trophic shifts at faunal assemblages within the invading macroalga *Caulerpa racemosa* in comparison to established communities of *Posidonia oceanica* seagrass meadows. Sampling of macrobenthic invertebrates and their potential food sources of algal mats and seagrass meadows in Mallorca (NW Mediterranean) showed differences in species composition of faunal and primary producers among seagrass and C. racemosa. Accordingly, changes in food web structure and trophic guilds were observed, not only at species level but also at community level. The carbon and nitrogen isotope signatures of herbivores, detritivores and deposit feeders confirmed that the seagrass provided a small contribution to the macrofaunal organisms. δ13C at the P. oceanica seagrass and at the C. racemosa assemblages differed, ranging from –6.19 to –21.20‰ and –2.67 to –31.41‰, respectively. δ15N at the Caulerpa mats was lower (ranging from 2.64 to 10.45‰) than that at the seagrass meadows (3.51–12. 94‰). Significant differences in isotopic signatures and trophic level among trophic guilds at P. oceanica and C. racemosa were found. N fractionation at trophic guild level considerable differed between seagrass and macroalgae mats, especially for detritivores, deposit feeders, and herbivores. Filter feeders slightly differed with a relatively lower N signal at the seagrass and CR values at community level and at trophic guild level were higher in the C. racemosa invaded habitats indicating an increase in diversity of basal resource pools. C. racemosa did seem to broaden the niche diversity of the P. oceanica meadows it colonised at the base of the food web, may be due to the establishment of a new basal resource. The extent of the effects of invasive species on ecosystem functioning is a fundamental issue in conservation ecology. The observed changes in invertebrate and macrophytic composition, stable isotope signatures of concomitant species and consequent trophic guild and niche breadth shifts at invaded Caulerpa beds increase our understanding of the seagrass systems.

Keywords: alien species; stable isotopes; *Caulerpa racemosa*; *Posidonia oceanica*; food web; Mediterranean; seagrass