

Center for Community-Based Resource Management (CBRM)

Natural Resources Institute, University of Manitoba

CBRM Database

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| Date: | 21/Oct/2014 | Entry Number: | 1359 |
| Case Study Name: | Application and demonstration of the Ecohydrology approach for the sustainable functioning of the Guadiana estuary (South Portugal) | | |
| Authors: | Luis Chícharo, Radhouane Ben Hamadou, Ana Amaral, Pedro Range, Carmen Mateus, David Piló, Rute Marques Maria Alexandra Chícharo | | |
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| Region: | Europe | | |
| Country: | Portugal | | |
| Ecosystem Type: | Estuary | | |
| Social Characteristics: | Community inside protected area | | |
| Scale of Study: | Regional | | |
| Resource Type: | Protected area | | |

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| Type of Initiative: | Research and developmental project |
| Community-Based Work: | Resource management and conservation |
| Keywords: | Ecohydrology demosite, Guadiana, anthropogenic, biodiversity, resources, management, microalgal, salt marshes, water quality, bivalve, phytoplankton. |
| Summary: | <p>The implementation of the UNESCO demosite at the Guadiana estuary represents an excellent opportunity to demonstrate how to adapt, mitigate and restore functioning of estuaries and coastal areas impacted by dams and climatic changes, using the Ecohydrology approach. Worldwide estuaries are suffering similar anthropogenic impacts that affect ecosystem functioning, biodiversity and resources. Therefore, the mesocosms experiments at the Guadiana Ecohydrology demosite constitute a collection of case studies, whose results can be used for testing solutions for the sustainable management of other estuarine systems. We applied the Ecohydrology concepts and methods to test: a) the usefulness of freshwater inflow pulses to regulate biodiversity and to control microalgal blooms, by regulating nutrient ratios and thus enhancing the bottom-up control of water quality; b) the usefulness of using the feeding ability of bivalve assemblages to control microalgal blooms (top-down control of water quality, and; c) the role of salt marsh plants (Salicornia ramosissima) to reduce excessive concentrations of nutrients and control estuarine water quality. Results show that the interplay between organisms (bivalves, plants) and hydrological factors is a key for improving water quality and sustaining biodiversity and the good eco-logical status of this estuarine ecosystem.</p> |