

2499 SALINITY LEVELS AS A FACTOR OF PHYTOPLANKTONIC STRUCTURE AND DIVERSITY REMEDIATION IN A LAGOON IMPACTED BY HUMAN ACTIVITIES. (Bolmon Lagoon, Mediterranean Coast, France)**Fayolle S.¹, Charpy-Roubaud C.², Ollivier A.¹, Maasri A.¹, Franquet E.¹**¹ IMEP C32, ² IRD (UMR 193) - ^{1,2} IMEP (UMR CNRS/IRD) Aix-Marseille Université, Faculté des Sciences de St. Jérôme, Boîte 441, 13397 Marseille cedex 20, FRANCE.

The Bolmon lagoon (South-eastern France) is located in the coastal hinterland of the Mediterranean Sea. It is connected to the salty Berre pond and in the other hand receives fresh waters from the La Cadiere River. This hyper-shallow lagoon has been classified in the early 70's as β mixo-mesohaline. Bolmon lagoon is important for human activities (tourism, fishing) and for the preservation of the diversity of marine and birds species. In the last decades, the intensive urbanisation of its drainage basin induced a high eutrophication of its waters and, as a consequence, drastic modifications in the biodiversity and in the functioning of this ecosystem. The high growth of phytoplanktonic organisms, induced periods of anaerobic conditions. Blooms of cyanobacterias were recurrent, dominated by *Planktothrix agardhii* (which attempts 30.10⁶ cells/l), in winter and in spring, and by *Pseudanabaena limnetica*, in summer; *Limnothrix planctonica* was present the whole year. During the year 2007, important hydraulic managements were made, resulting in a decrease of freshwater arrivals in Bolmon lagoon. The concentration in nutrients did not decrease strongly but the salinity increased drastically; Bolmon lagoon became classified as α mixo-mesohaline. The present work explored the influence of the salinity in terms of its impact on diversity and density phytoplankton changes, studied by microscopic observations and counts of cells (Fush-Rosenthal count cell). Results showed modifications in phytoplanktonic structure and in the cyanobacterial community. In particular, if the different levels of salinity did not impact nor *Pseudanabaena limnetica*, nor *Limnothrix planctonica*, the dynamic of *Planktothrix agardhii* is particularly sensible to the salinity. This toxic species, which was predominant with a very high density when the waters were β mixo-mesohaline disappeared totally when the salinity was superior to 12 g/l. In the lagoonal Bolmon the salinity levels, because strongly contributing to diversity and development of indicating species of pollution such *Planktothrix agardhii*, must be taken into account from the point of view of remediation of these types of ecosystems.

2217 RESPONSES AND STRUCTURAL RECOVERY OF PERIPHYTIC DIATOM COMMUNITIES AFTER SHORT-TERM DISTURBANCE IN SOME RIVERS (HANOI, VIETNAM)**Duong T. T.¹, Feurtet-Mazel A.², Coste M.³, Dang Dinh Kim¹**¹ Institute of Environmental Technology, Vietnamese Academy of Science and Technology, 18 Hoang Quoc Viet Road, Cau Giay, Hanoi, VIETNAM. ² Université de Bordeaux 1, CNRS, UMR 5805 EPOC, Place du Dr Peyneau, 33120 Arcachon, FRANCE. ³ Unité de Recherche Réseaux, Epuration et Qualité des REQE, Cemagref, 50 avenue de Verdun, 33612 Cestas Cedex, FRANCE

Field transfer experiments of periphytic diatom assemblages developed on artificial substrates were set up to assess responses of periphytic diatom communities to environmental disturbances. Glass substrates were positioned for colonization in comparatively unpolluted site (Red, in Red River) and heavily polluted site (TL, in Tolich River) at the beginning of the experiment. After a period of two weeks colonized glass substrates were transferred from Red site to TL site and to a moderate polluted site (NT₂ in Nhue River) and conversely, from TL site to Red site, and to NT₂ site. Responses and capacity of periphytic diatom communities to adapt environmental changes were assessed by using cells density, diversity index, species richness, taxonomic composition and diatom indices after 2 and 4 weeks transfer periods and varied for each site. For transfers from Red to NT₂, TL to Red and TL to NT₂, diatoms density significantly increased till the end of experiment whereas growth inhibition of diatom cells was found in transferred biofilms from Red site to TL site. Thus, diatom communities have expressed their pollution tolerance or sensitivities by changing their composition to adapt themselves to changes of environment. In transferred biofilms, from Red to NT₂, characteristic species of Red site were replaced by *Nitzschia palea*, *Nitzschia umbonata*, *Aulacoseira granulata* species typical of NT₂ site. Relative abundances of typical diatoms species of Red site proliferated in biofilm transferred from TL site to Red site. Replacement of periphytic diatoms communities after transfer appeared from two weeks in the different sites. Slowly shift of Red species by typical TL species could be in relation with the organized structure of the biofilm before transfer. Species richness and diversity index were not clearly reflecting responses of periphytic diatom to disturbance. Shifts in values of IPS and DAIPo indices, throughout the experiment indicated sensitivity of these indices to water quality changes.



3IMEBE

21-25 September 2008
Palma de Mallorca. Spain

THE THIRD INTERNATIONAL MEETING ON ENVIRONMENTAL BIOTECHNOLOGY AND ENGINEERING

Edited by:

Isabel Sastre Conde, Hervé Macarie, Gerardo López López, Ana M^a Ibáñez Burgos
Carme Garau, Joana María Luna, Joan March, Antoni Martorell
Margalida Colombas, Jaume Vadell, Jeroni Vera
Jose Luis Sanz

Members of the 3IMEBE Organization

Design of the Draws by: Macarena Moreno Moreno

Published by: Govern de les Illes Balears
Conselleria d'Agricultura i Pesca
Eusebio Estada, 145. Palma de Mallorca. Balearic Island. SPAIN

Edited by:
Isabel Sastre Conde, Hervé Macarie, Gerardo López López, Ana M^a Ibáñez Burgos
Carme Garau, Joana María Luna, Joan March, Antoni Martorell
Margalida Colombas, Jaume Vadell, Jeroni Vera
Jose Luis Sanz

Members of the 3IMEBE Organization

Design of the Draws by: Macarena Moreno Moreno
III Campus Universitario. 28300 Aranjuez. Madrid. SPAIN

Design and printing: Gràfiques Terrasa

ISBN: 978-84-692-4948-2

Deposito Legal: PM-1549-2009