

Editorial

Towards a stronger collaboration among Latin American countries to enhance Coastal Zone Management

The traditional definition of Latin America covers all countries of the American continent, from México to Argentina, that were colonized by Portugal and Spain from 16th to the 19th century. Over the past few decades, emigration and commercial relations have spread the cultural values of Latin America all over the world. Despite the existing differences, which arise from the dimension of the geographical area populated by Latin Americans share common traits that are easily recognized among and beyond them, being a powerful integrating factor. In that sense, sharing of concepts and experiences in delineating and implementing the Integrated Coastal Zone Management (ICZM) is certainly an important cultural and scientific challenge transcending the national borders in South and Central America and frequently involving Portugal and Spain.

Integrated Coastal Zone Management (ICZM) is understood as a process of participative governance based on cooperation between institutional and individual stakeholders. The overarching aim of this approach is to promote a sustainable development through the integration of, scientific knowledge, policies, strategies and sectorial plans in space and time. According to Perez-Cayero (2014), the “integration” in the coastal management process must be comprehended in a multi-system space i.e. administrative, geographical, ecological (ecosystem services) and social.

In the current context of global change, improving of coastal governance is a priority of paramount importance for billions of people around the world. Integrated Coastal Management is increasingly relevant in eradication of poverty and social inequalities in our region, and to promote efficient adaptation measures to the local

forcings of global change. It is understood and accepted that only by protecting and restoring the natural base on which we depend, we may create a socially inclusive and truly sustainable economic growth. The articles presented in this thematic issue seek to contribute to regional dialogue both among scientists and decision makers and between the countries of the region facing common challenges.

The thematic scope of the presented papers is broad. It covers the topics on physical forcings on the coastal fringe (*e.g.*, erosion and climate change), coastal infrastructures, and Coastal Management policies, with the equal share in terms of importance for developing coastal management initiatives.

For instance, the work of Mendoza *et al.* demonstrates the importance of having a practical tool to measure the volume of solid waste in beaches in order to develop protocols on beach monitoring.

Marine litter issue is also addressed in the work of Eastman *et al.*, which analyses the importance of a hands-on approach in school education. The authors developed a seven steps procedure for designing a successful citizen science project that involves schoolchildren in monitoring of the coasts. The experience shows the usefulness of the gathered data for coastal managers and proves to be a meaningful support in decision-making processes.

Amaral *et al.* work, also deals with evaluation of schoolchildren’s change in awareness and perception of reef conservation, which was produced by environmental education targeting that issue. In their survey they applied questionnaires to 10-12 years old children,

before and after environmental educational activities. The survey proved that after the educational activities children had shown an improved perception of the need for reef conservation, rather than just seeing the reef as an asset for tourism. This demonstrates the importance of environmental education in changing attitudes of the future adults towards a more participative citizenship, involved in territorial management process.

The article by Isla & Cortizo addresses fluvial sediment inputs and cliff erosion in the Atlantic continental shelf of Argentina, from Buenos Aires down to Tierra del Fuego. The averaged rate of cliff retreat estimated in this study approaches 0.6 meters per year. The authors conclude that the sediment supply from the cliff erosion exceeds the sediment brought to the shelf by fluvial transport. The practical implications of these findings for coastal management are huge and the research recommends seriously taking into account both processes when addressing sand balance accreted to or eroded from the beaches and transported by the longshore current.

The article by Nagy *et al.* deals with the present and future, climate related risks in the Rio de la Plata coast and the estuarine front in Uruguay. The analyses and forecast are based on the outcomes of a project that analysed adaptation measures in several pilot sites and built a climate scenario for the coastal area of Uruguay. The study highlights lessons learned from ICZM experiences and the need for working with stakeholders in participatory problem-solving as well as the benefits of developing alternative futures to prioritize actions.

Moreira *et al.* analyses the spatial and temporal phytoplankton distribution and the occurrence of harmful algal blooms (HABS) in the Cienfuegos Bay in Cuba, with the aim of developing indicators of coastal eutrophication. Phytoplankton biomass, harmful/toxic algal blooms occurrence and bottom dissolved oxygen concentrations are used as proxies of overall trophic rank. The main findings of this study point to the necessity of addressing the water quality issue in the areas of reduced water dynamics along Cienfuegos Bay. Efforts for coping with sewage discharge and improving environmental quality due to eutrophication and the presence of harmful algal blooms are suggested as part of a major coastal management plan for Cienfuegos Bay. This plan also would have to consider the implementation of control on molluscs' harvesting during bloom periods. Green mussel *Perna viridis*, is proposed for monitoring and a special attention is recommended for observation of fish mortality due to the red tide forming dinoflagellate *Cochlodinium polykrikoides*.

The article by Romero *et al.* proposes an evaluation of the environmental management systems in Brazilian ports. Several methods of analyses – such as SWOT,

Gap and SDM were combined and allowed to conclude that this procedure allows managers to better delineate the challenges and strategies in order to improve the environmental management of the ports. From the analyses of questionnaires responded by port managers, the authors concluded that the environmental problems did not receive an adequate attention from the managers who tended to minimize their importance. A better understanding of environmental management systems and better communication tools are cited as solutions to improve these systems in the Brazilian Ports.

In their study dedicated to the coral reefs Loiola *et al.* propose the definition of priority areas for conservation, creating No-Take Zones (NTK). The study was carried on in a coastal reef complex off the eastern Brazilian coast. The authors recommend a creation of two NTK areas, each of 12 km², over two different reefs classified as high priority for conservation.

The work of Morais & Abessa addresses the coastal problems of the Complexo Estuarino-Lagunar Iguape-Cananéia (CELIC), using the pressure-state-response method (PSR), a simplified version of the DPSIR methodology. The authors argue that, although pressure in urban development is lower compared to other coastal areas, status indicators show that there are structural deficiencies in terms of basic needs, such as health and sanitation, and that the problem is increasing due to the lack of proper government response to this issue.

Last, but not least, the investigation of Caviedes *et al.* synthesizes the findings of the diagnosis of integrated coastal areas of Honduras, as well as a critical and proactive analysis of the current management methods applied in this Central American country. The article is based on the collective work of IBERMAR Group Honduras, which has been leading, from academia to government and non-governmental organizations, the current process of discussion, design, formulation and approval of the State Policy-oriented for Integrated Coastal and Marine Management. The main value of the approach used in this work, besides being a valuable scientific contribution, consists in supporting the process potentially leading to a better governance of the coastal and marine areas in strategic locations.

The analysis of 11 Latin-American countries, plus Portugal and Spain, done by Barragán (2010), stressed the need of a regional initiative to deal with coastal problems and management. The author proposes a Latin American platform for experiences interchange, which could be a propeller for new ideas on ocean and coast governance, as well a place to build capacity on human resources to deal with this great challenge. This thematic number of Journal of Integrated Coastal Zone Management contributes to this communication congregating some Latin American experiences on ICZM.

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References

- Barragan, J.M.M. (coord.) (2010) - *Manejo Costero Integrado y Política Pública en Iberoamérica: Un diagnóstico. Necesidad de Cambio*. 380p., Red IBERMAR (CYTED), Cádiz, Spain. Available on-line at [http://hum117.uca.es/ibermar/Resultados y descargas/librodiagnosticoibermar](http://hum117.uca.es/ibermar/Resultados_y_descargas/librodiagnosticoibermar)
- Perez-Cayero, M. L. (2014) - *Gestión Integrada de Áreas Litorales. Análisis de los Fundamentos de la Disciplina*. 404p., Editorial Taber, Madrid, Spain, ISBN: 978-8473604895

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