



TRAINING COURSE IN THE HYDRO-DYNAMIC AND ECOLOGICAL MODELING OF COASTAL LAGOONS AND LITTORAL ZONES

SEMINARIO AVANZADO Y DE
ESPECIALIZACIÓN EN EL MODELADO
HIDRODINÁMICO Y ECOLÓGICO
DE ZONAS LITORALES Y LAGUNAS
COSTERAS

FURTHER INFORMATION:
internacional@campusmarenostrum.es

28 SEPT-6 OCTUBRE 2017

Matrícula gratuita - Créditos CRAU: 2
Número máximo de alumnos:25



UNIVERSIDAD DE
MURCIA



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de Excelencia Internacional

Coastal lagoons are complex and dynamic systems characterized by a high biological productivity and environmental heterogeneity. They are coastal water bodies characterised by being shallow and relatively isolated from the open sea by coastal barriers that provide some connecting channels or inlets. They play an important ecological role in coastal ecosystems by providing a collection of habitat types for many species, functioning as nursery areas and feeding grounds for marine estuarine opportunistic fishes. These environments also house a high biodiversity.

These ecosystems are also considered a key factor in regional economy. The physiographic and ecological features of coastal lagoons provide goods and services for humans. They support important fisheries and many of them can be used for intensive and extensive aquaculture exploitation. At the same time, they are also suitable for nautical sports, swimming and health care.

Most lagoon properties arise from their geomorphology and configuration. From a physical perspective, these ecosystems are characterised by the presence of boundaries and transitions between land and water, between the water column and the sediment layer and the atmosphere, between the lagoon and the sea and, frequently, between the waters in the lagoon and freshwater inputs. Each boundary involves strong physical and ecological gradients, which makes them dynamic systems controlled and subsidized by physical energies.

Proper management of these ecosystems requires modelling tools, both hydrodynamic and ecological, to simulate the consequences of different management options and anticipate the consequences of anthropic actions and coastal works, such as dredging, construction of dikes and marinas, or the effects of eutrophication.

This course aims to train students in the knowledge of coastal lagoons ecology and in the use of modelling tools for the study of hydrodynamic processes as well as the organization of communities and their connectivity with the open sea.

TRAINING COURSE PROGRAM

LOCALITY	DAY	MODULE	TEACHERS	LECTURES AND PRACTICAL SESSIONS	HOURS
Centro de Alto Rendimiento (CAR) Avda. Mariano Ballester nº2 30710 Los Alcázares Murcia	28 sept	Introduction: Coastal lagoons functioning and ecology	Angel Pérez-Ruzafa	Organization and functioning of coastal lagoon ecosystem	3 T
				Sampling design and data collection for studying coastal lagoon dynamics	3 T
	29 sept	Sampling and data collection	Umu team	Field trip to Mar Menor lagoon, sampling and data collection	8 P
	30 sept	Theoretical basis	Georg Umgiesser	Principles of coastal lagoon hydrology	3 T
	Arturas Razinkovas		Trophic webs in coastal lagoons	3 T	
Universidad de Murcia	02 oct	Hydrodynamic models	Georg Umgiesser	Modelling coastal lagoon processes using Shyftem	6 P
	03 oct		Michol Ghezso	Modelling connectivity in coastal lagoons using lagrangian approach	6 P
	04 oct	Sediment-water column interphases	Elena Sánchez Badorrey	Modelling oxygen fluxes in the water-sediment interphase	6 P
	05 oct	Ecological modelling	Alí Erturk	Water column and Eutrophication models in coastal lagoons	6 P
	06 oct		Arturas Razinkovas	Trophic web modelling in coastal lagoons using Ecopath	6 P
	06 oct		Synthesis		

T: theoretical lectures - P: practical sessions