

compared to the other. Thirdly, the use all available techniques (statistical models, numerical models, analytical models, dynamic ecological simulations, static analyses of biological networks or food webs) needs to be accepted while exploring any impact. We suggest this because we are aware of the fact that all approaches have their advantages and restrictions. To make this all to a success it is also required to focus on data collection via a wide compliance monitoring program. In suitable knowledge-practice interface constructions these data can feed models, statistical tools and other mathematical approaches to make any policy making trajectory to a widely supported and accepted process instead of the current 'top-down' approach.

### **O6.2**

#### **Flood risk assessment in estuaries. The importance of historical data integration in predictive tools development**

Freire P<sup>1</sup>, Fortunato AB<sup>1</sup>, Rilo AR<sup>1</sup>, Bertin X<sup>2</sup>, Li K<sup>1</sup>

<sup>1</sup>National Civil Engineering Laboratory, Portugal

<sup>2</sup>UMR 6250 LIENSs CNRS-Université de La Rochelle, Institut du Littoral et de l'Environnement, France

Corresponding author: pfreire@lnec.pt (P Freire)

Floods in estuaries can be driven by different forcing mechanisms from ocean and inland sources and are often aggravated in urban areas by insufficient drainage conditions. Sea-level rise and extreme climate events can exacerbate water levels inside the estuaries. Developments are being made to reduce the uncertainty of forecast tools in order to provide reliable flood predictions that can support risk assessment and management strategies. The integration of historical events data analysis in hazard forecasting can contribute to a better knowledge of the dominant flood drivers and to improve the validation of the models. In the present work a data base of historical flood events was constructed for the Tagus estuary (Portugal), which particular geometry, hydrodynamic conditions and territory occupation promote natural and urban flooding. Historical events were assessed through newspaper reports, technical and scientific publications, municipal and civil protection records, online databases and hindcast simulations. Possible flood drivers (tide, storm surge, wind, waves, precipitation and fresh-water discharges) were evaluated for the higher impact events including the episode that resulted from Xynthia storm that reached the Portuguese coast on February 2010. The results provided a good insight about the contribution of the different forcing mechanisms in Tagus flood events.

### **O6.3**

#### **The use of validated remote sensing products for supporting the implementation of the European Marine Strategy Framework Directive using the Southwestern coast of the Iberian Peninsula as a case study.**

Cristina S<sup>1,2</sup>, Goela PC<sup>1,2</sup>, Icely J<sup>1,3</sup>, Newton A<sup>1,4</sup>, DelValls TA<sup>2</sup>

<sup>1</sup>CIMA-FCT, University of Algarve, Faro, Portugal

<sup>2</sup>Facultad de Ciencias del Mar y Ambientales, University of Cadiz, Puerto Real, Cadiz, Spain

<sup>3</sup>Sagremarisco Lda., Vila do Bispo, Portugal

<sup>4</sup>NILU-IMPEC, Kjeller, Norway

Corresponding author: cristina.scv@gmail.com (S Cristina)

The exclusive economic zone of coastal countries are coming under increasing pressure from various economic sectors such as fishing, aquaculture, shipping and energy production. In Europe there is pressure to expand the maritime economic sector without damaging the environment by ensuring that these activities comply with legally binding Directives such as the Marine Strategy Framework Directive (MSFD). However, monitoring an extensive maritime area, particularly during periods of environmental change, is a logistical and economic challenge. Remote sensing is considered one of the most cost effective methods for providing the spatial and temporal, environmental data that will be necessary for the effective implementation of the MSFD. However, there is always a concern about the uncertainties associated with remote sensing products. This presentation will show how in situ data from the SW Iberian Peninsula has been used to validate the quality of remote sensing products from the MEdium Resolution Imaging Spectrometer (MERIS) sensor of the European Space Agency for ocean colour products such as water leaving reflectance and algal pigments.

### **O6.4**

#### **Estuarine management using digital imaging technology and citizen scientists, including multiple ecosystem components**

Vermeiren P, MacKenzie J, Sheaves M

Estuary and Tidal Wetland Ecosystems Research Group, James Cook University, Townsville, Australia

Corresponding author: peter.vermeiren@gmail.com (P Vermeiren)

Rapid changes to the estuarine landscape resulting from anthropogenic pressures necessitate new tools to support informed management, applicable to the large scale impacts of climate change and urbanization.