



From Catchment to Coast: Fluxes and transformations through the river-estuary system

**January 8-10, 2012
Bangor University, North Wales**

**An interdisciplinary conference for researchers and
practitioners**

This conference has been convened by a team from the Aberystwyth University (Paul Brewer and Mark Macklin) and Bangor University (Jaco Baas, Alan Davies and Colin Jago) under the aegis of the Centre for Catchment and Coastal Research (CCCR). The conference aims to bring together researchers and practitioners interested in new methods, empirical datasets, conceptual models and theoretical developments related to fluxes and transformations in the river-estuary transition zone. There will be opportunities to review recent developments in the field and to identify avenues for future research.

The conference features oral presentations within the following key themes:

- Sediment, nutrient and pollution delivery from catchments to coasts
- Process dynamics and sedimentary archives of tidally-influenced rivers
- Estuarine morphodynamics and material fluxes
- Modelling and management of floods in the river-estuary transition zone
- Impacts of environmental change on river-estuary systems

The conference will promote interaction between researchers and practitioners working at the important catchment-coastal interface, as well as enhance our knowledge of tidally influenced rivers, which form a critical process link between terrestrial catchments and the marine environment.



Conference Programme

Sunday 8th January

- 18.00 onwards **Registration – Management Centre**
- 19.00 – 21.00 **Ice-breaker reception in the Management Centre**
- 21.00 onwards **Optional evening meal in Bangor**
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Monday 9th January

- 7.00 – 8.30 **Breakfast in the Management Centre**
- 8.30 – 9.00 **Travel to the Reichel Centre (by foot or by car)**
- 9.00 **Introduction and Welcome**
Colin Jago and Mark Macklin

Paper session 1: Large-scale / long-term catchment and coastal process dynamics

Chair: Mark Macklin

- 9.10 – 9.50 ***Keynote address***
THE TRAPPING OF FLUVIAL-TIDAL SEDIMENT IN THE RHINE DELTA THROUGH THE HOLOCENE
Cohen, Kim
- 9.50 – 10.10 ADAPTATION OF THE RHINE-MEUSE CHANNEL NETWORK TO LARGE-SCALE HUMAN INTERVENTIONS OVER THE PAST 150 YEARS
Vellinga, Nynke, van der Vegt, Maarten & Hoitink, Ton
- 10.10 – 10.30 HOW THE TIDE AFFECTS THE TEMPERATURE OF COASTAL WATERS
Bowers, David
- 10.30 – 10.50 CONTEMPORARY AND HISTORICAL SEDIMENT-ASSOCIATED METAL DISPERSAL AND STORAGE IN THE LOWER RIVER DANUBE: AN EXAMPLE OF STUDY WITHIN A MULTI-NATIONAL DRAINAGE BASIN.
Bird, Graham, Brewer, Paul A., Macklin, Mark G., Nikolova, Mariana, Kotsev, Tsvetan & Sima, Mihaela
- 10.50 – 11.10 **Refreshment break**

Paper session 2: Hydrodynamics in the River Estuarine Transition Zone

Chair: Alan Davies

- 11.10 – 11.50** **Keynote address**
SEDIMENTOLOGY OF TIDALLY-INFLUENCED FLUVIAL DEPOSITS
Ashworth, Philip J., Sambrook Smith, Gregory H., Best, James L., Nicholas, Andrew P., Parsons, Daniel R., Prokocki, Eric, Sandbach, Steven & Simpson, Christopher J.
- 11.50 – 12.10** HYDRODYNAMICS OF THE TIDALLY-INFLUENCED FLUVIAL ZONE, COLUMBIA RIVER ESTUARY, USA
Sandbach, Steven, Simpson, Chris, Sambrook Smith, Greg, Parson, Daniel, Nicholas, Andrew, Best, James & Ashworth, Phil
- 12.10 – 12.30** NEAR-BED ENERGY DISSIPATION IN A CANALISED RIVER ESTUARINE TRANSITION ZONE
Wright, Jonathan & Baas, Jaco H.
- 12.30 – 12.50** SOURCES AND DELIVERY OF PHOSPHORUS TO RIVERS AND THE COASTAL ZONE
Withers, Paul J.A & Jarvie, Helen P.
- 13.00 – 14.00** **Lunch in the Reichel Centre**

Paper session 3: Morphodynamics in the River Estuarine Transition Zone

Chair: Colin Jago

- 14.00 – 14.20** MORPHODYNAMICS IN TIDALLY-INFLUENCED RIVERS: RE-THINKING CATCHMENT MANAGEMENT, FLOOD RISK AND MATERIAL FLUXES.
Brewer, Paul A., Macklin, Mark G., Huband, Marc & Rassner, Sara
- 14.20 – 14.40** CHARACTERISING SUSPENDED PARTICULATE MATTER IN THE DYFI RIVER ESTUARINE TRANSITION ZONE
Hübner, R., Kennedy, H. & Jago, C.
- 14.40 – 15.00** USING BED SEDIMENT COMPOSITION TO QUANTIFY THE ENERGY BALANCE BETWEEN FLUVIAL AND TIDAL PROCESSES IN THE DYFI RIVER AND ESTUARY
Baas, Jaco & Mousa, Walied
- 15.00 – 15.20** SUSPENDED PARTICULATE MATTER CHARACTERISTICS IN THE RIVER ESTUARY TRANSITION ZONE
Jackson, Suzanna, Jago, Colin, Bowers, David & Old, Chris
- 15.20 – 15.40** **Refreshment break**

Paper session 4: Estuary dynamics

Chair: Jaco Baas

- 15.40 – 16.00** HYDRODYNAMICS AND WATER QUALITY IN THE CLYDE ESTUARY
Schlicke, Ted, Williams, Mark, Wieczorek, Gunda & Hills, Alan
- 16.00 – 16.20** PHOSPHOROUS TRANSFORMATIONS AT THE WYRE ESTUARY (LANCASHIRE, UK) DURING TIDAL CYCLES
Moreno, Isabel, Ilic, Suzana, Folkard, Andrew & Lofts, Stephen
- 16.20 – 16.40** TURBULENCE-CONTROLLED FLOCCULATION IN A MACRO-TIDAL ESTUARY
Todd, David, Bolanos-Sanchez, Rodolfo, Souza, Alejandro & Jago, Colin
- 16.40 – 17.00** SAND FLUX AND BUDGET MEASUREMENTS ON TIDAL TO DECADAL TIME SCALES IN A MACROTIDAL ESTUARY.
Colin Jago, Garry Reid, Kadir Ishak, Sarah Jones, Jaco Baas
- 17.00 – 17.20** OBSERVATIONS OF DUNES AND THEIR PREDICTED FEEDBACK EFFECT ON SEDIMENT TRANSPORT IN THE DYFI ESTUARY
McCann, David L., Davies, Alan G. & Bennell, James D.
- 17.20 – 17.40** THE MIGRATION OF LARGE SCALE BEDFORMS AND THEIR CONTRIBUTION TO THE SEDIMENT BUDGET OF AN ESTUARINE ENVIRONMENT
Way, Oliver, Bell, Paul & Davies, Alan
- 19.00** **CONFERENCE DINNER – MANAGEMENT CENTRE**

Tuesday 10th January

7.30 – 8.30 Breakfast in the Management Centre

8.30 – 9.00 Travel to the Reichel Centre (by foot or by car)

Paper session 5: Monitoring and management in the river-estuary system

Chair: Paul Brewer

- 9.00 – 9.40 **Keynote address**
SOUNDING OUT OUR RIVERS AND COASTLINES: SUBSTANTIVE ADVANCES IN UNDERSTANDING MORPHODYNAMICS THROUGH INNOVATIVE APPLICATION OF MULTIBEAM SONAR TECHNOLOGY
Parsons, Daniel, Simmons, Steve & Best, Jim
- 9.40 – 10.00 EFFECT OF URBAN DEVELOPMENT ON RIVER DISCHARGE USING DETERMINISTIC AND STOCHASTIC MODELS
Hashemi, Reza & Badiee, Mahsa
- 10.00 – 10.20 MANAGED REALIGNMENT AS A TOOL TO REDUCE TIDAL PROPAGATION IN ESTUARIES
Morris, Roger
- 10.20 – 10.40 APPLICATION OF A COASTAL MODEL TO COMPLEX ESTUARINE REGIONS TO INFORM FUTURE MANAGEMENT DECISIONS
Robins, Peter
- 10.40 – 11.00 **Refreshment break**
- 11.00 – 11.20 IMPACT OF TIDAL ENERGY EXTRACTION ON SEDIMENT DYNAMICS
Neill, Simon
- 11.20 – 11.40 LONG-TERM MORPHOLOGICAL MODELLING OF TIDAL BASINS
McCann, David
- 11.40 – 12.00 CONWY AND SUSFISH
Malham, Shelagh
- 12.00 – 13.00 **Plenary session**
Future research priorities, converting science into policy
Chairs: Colin Jago and Mark Macklin
- 13.00 – 14.00 **Lunch**
- 14.00 **End of conference**