

Thursday 5 October 2017

Happy New Year!

October marks the beginning of a new hydrological year and this year the KZN rains have been on time and have started gently. In South Africa at the moment, our discussions are all about drought. However, thirty years ago, KZN was mopping up after one of its biggest flood events of all time. Following the Demoina floods of February 1984, the September 1987 floods were widespread and caused extensive damage as well as significant loss of life - however our biggest flooding tragedy occurred on Christmas Day 1995. High intensity rainfall in the uMsunduzi catchment saw 154 people living along the Slangspruit and KwaPata tributaries lose their lives and about 5000 people were left homeless.

Over the past month across Asia, Europe and the Americas we have seen many reports of flooding. To me the striking thing about most of these flood events is the surprise that they are greeted with. With relatively few exceptions, they have occurred in areas where flood damage is often experienced. Worldwide, researchers, town and regional planners and politicians all know that the "business as usual approach" to flood planning and urban development needs to change, but we seem to be incapable of making the hard decisions needed. Our catchment areas are increasingly developed, resulting in more and more impervious areas, while vast amounts of debris clog-up the drainage systems - largely as a result of poor maintenance. Flood plains are built on or canalised and green spaces that have infiltration and storage potential are developed or used as dumping grounds. We are rapidly losing the insurance value that undeveloped spaces in the catchment provide. This is a key research area in the uMngeni Ecological Infrastructure Partnership, i.e. how to value and protect our natural capital when the investment pay-out is not in the direct financial form that society craves.

Flooding is inevitable and with the current extent of catchment degradation and development future flood events, such as the September 1987 or Christmas Day 1995 floods are likely to cause damage and loss of life far in excess of those floods we experienced decades ago.

- Prof. Graham Jewitt, Director of CWRR

Important dates

◆ **Wednesday 18 October:** Research on Tap CWRR Seminar 5. Theme: **The Food-Water-Energy-Land Nexus**. Chaired by Dr. Tafadzwa Mabhaudhi. 11am - 12.30pm, room 10, Raubie Saunders Building. The seminar will finish off with an introduction to **CWRR post-graduate opportunities for 2018**, followed by a lunch mingle for student-staff interaction and pizza, 12.30pm-13.30pm, also in room 10.

The CWRR Newsletter

You are reading the fifth issue of the CWRR's new Newsletter. The aim of the Newsletter is to keep everybody at, and interested in the Centre updated about the movements and improvements - of our colleagues' achievements and endeavors, projects, outputs and outreach.



The Newsletter will come out monthly and requires inputs from all of us! Please send photos of your fieldtrips, information on your conferences, links to publications, and more, to CWRR@ukzn.ac.za or MalingaR@ukzn.ac.za

The Newsletter is now also available online at cwr.ukzn.ac.za



WRC Symposium 2017

The Water Research Commission's 3rd biennial symposium with the theme "Adaptation to the new normal", was held 18-20 September in Boksburg, Johannesburg. The symposium hosted over 400 attendees, amongst them CWRR members Prof. Graham Jewitt and Simphiwe Ngcobo.

Rather than having a traditional research focus, the symposium event was intended to provide a platform for opinion leaders, industry experts, government officials, public and private sector decision makers, young water professionals and innovators to exchange knowledge and map out bold interventions that will facilitate adaptation to a new normal.

Prof. Jewitt presented "Developing the Business Case for Investment in Ecological Infrastructure to Provide Water Related Ecosystem Services", in the special session on The Green Economy.

Master project proposal presentations

On 6 and 13 September, seven of our promising MSc students presented their project proposals to other students and Centre members. Nantale Nsibirwa, Thivashnie Naidoo, Londiwe Dlamini, Roanne Sutcliffe, Tasmayah Peerbahi, Nomcebo Myeza and Jeremy Moonsamy successfully mastered this task including defending their work in a Q&A session. All got useful feedback for continuing their work and will hopefully soon present a first draft of their dissertations to their supervisors. We wish them all the best for the work ahead and looking forward to some more interesting research results.



CWRR goes social

Keep updated through our newly launched social media channels. Find us, like us, follow us and tweet us: @TheCWRR at [Twitter](#) and [Facebook](#).



Latest publications – journal articles

◆ Dr. Richard Meissner and others have a new publication in *The international journal of Water Governance* on a dialogue between scientists and policy makers regarding a sediment research project in the Olifants River, South Africa. The article can be found [here!](#)

◆ *Hydrology and Earth System Sciences* published [this article](#) by Bruce Scott-Shaw, Prof. Colin Everson and Dr. Alistair Clulow, titled “Water-use dynamics of an alien-invaded riparian forest within the Mediterranean climate zone of the Western Cape, South Africa”.

PhD fieldwork on fish in crocodile waters

Mahomed Desai is a senior researcher and PhD candidate supervised by Dr. Gordon O'Brien. His study focuses on evaluating the relationship between freshwater ichthyofauna (the fish life of a specific region) and multiple environmental characteristics. The geographic region of his research is primarily focused on east-flowing sub-tropical systems and consists of the Lower Thukela River, the St. Lucia Catchment (iMfolozi, Hluhluwe and Mkuze Rivers) and the Pungwe River in Mozambique. These systems typically possess populations of crocodiles making fieldwork more exciting, particularly in the Pungwe, where several people are killed by crocodiles annually. Seasonality of fieldwork is dependent on the project but is primarily in bi-annually or quarterly increments. Sampling is conducted passively using fyke and gill nets and actively using seine nets, of various sizes, and electro narcosis. DNA samples of selected taxa are also collected to aid in additional studies by other researchers. Exciting findings thus far include the possibility of novel or undescribed species from the genus *Enteromius* and *Chiloglanis* but further taxonomical studies are required. In addition, species are being recorded further south than previously known.



Drone flight at Baynesfield Estate

The Biofuels Project Team used a drone at Baynesfield to obtain aerial photographs of a surface renewal system measuring actual evapotranspiration in a fallow maize field. Flying conditions on 3 August were perfect, with clear skies and no wind. The drone acquired its GPS position, then launched automatically into a hover, after which it was manually positioned above the surface renewal system. The system consists of a strongbox housing two batteries and a mast used for 2m measurements of solar and net radiation, wind speed, air temperature as well as relative humidity. In addition, there is a tipping bucket rain gauge and two fine wire thermocouples on horizontal arms positioned at 10 and 100cm above the soil surface. Wind speed is also measured at near ground level using a 2D sonic anemometer. Soil water content is monitored near the soil surface and soil temperature is measured just above two soil heat flux plates. All sensors are connected to a data logger capable of storing high frequency measurements of air temperature via the two thermocouples. Read more at the [Centre's web site](#).

