UNIVERSITY OF KWAZULU-NATAL
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Centre for Water Resources Research
Making a difference - One drop at a time.

CWRR Newsletter September 2021
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CWRR Research on Tap Webinar on Climate change impacts on hydrological responses and yield in South Africa

The Centre for Water Resources Research (CWRR) warmly invites you to attend our next Research on Tap Webinar on 30 September 2021, at 2pm via Zoom. The Webinar is titled "*Potential Climate Change Impacts on Hydrological Responses and Hydrological Yield in South Africa*" and CWRR colleagues Dr. Stefanie Schütte, Dr. David Clark and Richard Kunz will present the methodology and results from this Water Research Commission funded project. Other CWRR members who participate in this project include Dr. Sabine Stuart-Hill, Prof. Roland Schulze, Prof. Jeff Smithers, Sean Thornton-Dibb, Dr. Michele Toucher, Rosebud Gwena, Ashvir Ramchandra, Zizile Jele and Ntombi Nxumalo. The CWRR partnered with the Council for Scientific and Industrial Research (CSIR), represented by Trevor Lumsden, and the Climate Systems Analysis Group (CSAG), represented by Dr. Piotr Wolski.

The project, which started in 2018, aimed at establishing appropriate climate scenario projections into the future, which could be used as daily climate inputs into the ACRU Model to determine climate change impacts on runoff, streamflow and hydrological yield in South Africa. Additionally, actual land cover conditions for SA were used as model inputs. With hydrological responses being strongly dependent on rainfall totals, intensity and number of rain days, the results for mean annual streamflow and hydrological yield overall show little projected change over many parts of the country, mixed changes in the north and along the east coast, some increases in the eastern interior, and decreases in many parts in the west and especially in the south-western Cape.

- **Thursday 30 September 14.00 - 15.00 SAST**

Click here to register in advance for the webinar. After registering, you will receive a confirmation email containing information about how to join the meeting.

More Research on Tap Webinars in the pipeline

The CWRR are happy to pre-announce four upcoming Research on Tap webinars lined up for the next few months. We are thrilled to shortly see three of our Associates and one of our PhD candidates presenting their interesting and diverse work:

- Dr. Donovan Kotze will present a webinar titled "*Wetland assessments to inform ecosystem management and rehabilitation: some experiences from Southern Africa*"
- Dr. Eddie Riddell is going to present a webinar on "*Water resources management for transboundary conservation areas, from process to governance*"
- Dr. Nick Rivers-Moore will share "*Stories and perspectives of the Lower Orange River*" and
- CWRR PhD candidate Kudzanai Rosebud Gwena will give us some answers to the question: "*What would planning adaptation strategies at different scales mean for South Africa's yield management?*"

More information and invitations to the webinars will be communicated shortly.

The CWRR Newsletter

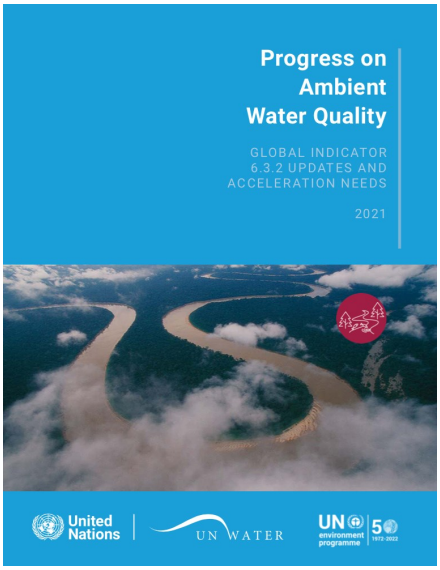
Welcome to the Fifth issue of the CWRR Newsletter 2021. The Newsletter carries news and updates of the achievements and endeavors of CWRR's members, staff, associates and students.

The Newsletter is also available online at CWRR.ukzn.ac.za
For suggestions and queries, please email HenrikssonR@ukzn.ac.za

Latest Publications

- Cape Town's "Day Zero" water crisis: A manufactured media event? *International Journal of Disaster Risk Reduction*, 2021. JF Warner and R Meissner.
- Analysis of International Yield Modelling Approaches to Ensure Adaptation Under Different Climate Futures and Spatiotemporal Scales for Semiarid Developing Countries. Chapter, 2021. In: W Leal Filho, J Luetz and D Ayal (eds) *Handbook of Climate Change Management*. Springer, Cham, 2021. KR Gwena and S Stuart-Hill.
- Can Sentinel-2 be used to detect invasive alien trees and shrubs in Savanna and Grassland Biomes? *Remote Sensing Applications: Society and Environment*, 2021. A Rebelo, S Gokool, PB Holden and M New.
- Social change innovations, citizen science, miniSASS and the SDGs. *Water Policy*, 2021. J Taylor, M Graham, A Louw, A Lepheana, B Madikizela, C Dickens, DV Chapman and S Warner.

MiniSASS biomonitoring reaches UN Water



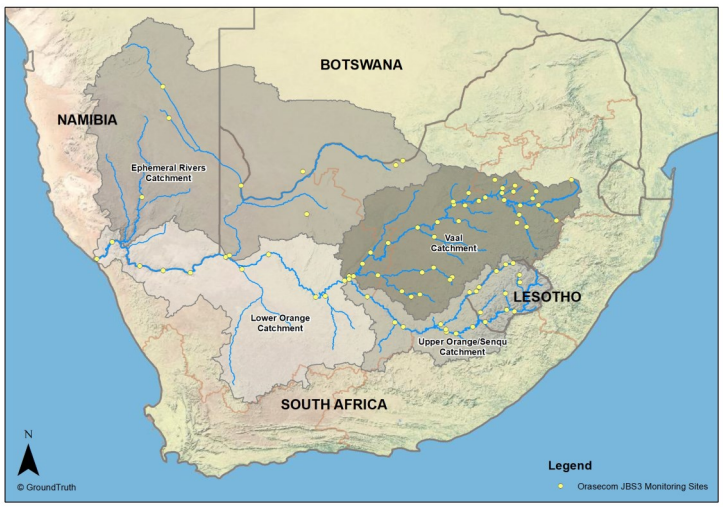
In 2013 Dr. Mark Graham and Dr. Chris Dickens (then at Umgeni Water) recognised the importance of enabling wider participation in water quality issues. Working with multiple partners, including WESSA, a range of citizen science tools were developed. CWRR Associate Dr. Mark Graham at GroundTruth, supported by the *Water Research Commission*, developed the Stream Assessment Scoring System (miniSASS) one of the key citizen science tools. MiniSASS quickly gained popularity in South Africa as well as in other southern African countries. Since then it has been applied in other countries across the World. Lately, the miniSASS has seen some interesting developments. UN Water contacted the miniSASS team recently to explore how well miniSASS could work in all countries of the world. This first led to the publication of a joint journal article, "*Social change innovations, citizen science, miniSASS and the SDGs*", led by Dr. Jim Taylor and published in *Water Policy* in 2021. Following this article, UN Water have now included the concept in the UN Water Manual 2021. The manual recommends the miniSASS for the SDGs, Target 6.3, as a level 2 indicator, as well as for SDG 6b, stated as follows *"miniSASS has the potential to complement physico-chemical data currently used for indicator 6.3.2 to provide a comprehensive picture of water quality"* and *"The use of the miniSASS biomonitoring approach developed in South Africa [...] and in situ physico-chemical approaches shows that if properly designed and implemented, such initiatives can provide greater spatial coverage than traditional laboratory-based monitoring networks [...]."* The CWRR congratulates the miniSASS team for this well-deserved recognition. *By Jim Taylor and Rebecka Henriksson*

African Research collaboration and MSc opportunities on miniSASS

CWRR Prof. Seifu Kebede Gurmessa has sourced funding, through a partnership with Oxford University, to further research around miniSASS and two MSc studies will commence in January 2022 – one based at UKZN and one in Addis Ababa, Ethiopia. This research will explore how biomonitoring expertise can be developed in different eco-regions of the world.

Suitable MSc Hydrology candidates interested in testing and developing appropriate biomonitoring tools and protocols for intermittent systems in arid climate in the tropics (the Upper Awash River in Ethiopia) can contact Noluthando Mhlungu for more information: MhlunguN@ukzn.ac.za. The due date for submission of CVs is 30 November 2021.

The ORASECOM Orange-Senqu Joint Basin Survey (JBS3 - 2021)



The ORASECOM Orange-Senqu Joint Basin Survey (JBS3 - 2021) is a *state-of-the-art* basin survey that takes place every five years. This year, the survey will be coordinated by GroundTruth and led by CWRR Associate Dr. Mark Graham. Regional Centres of Expertise (RCEs) from Lesotho and Gauteng are also involved in this study. The JBS3 - 2021 includes the monitoring of the aquatic ecosystem health (fish, macroinvertebrates, surface and ground water quality as well as diatoms) of the entire river system from the source to the sea. Additional monitoring tools added to JBS3 for 2021 include microplastics, eDNA and radiological analyses. The JBS3 is aligned with the SDGs and includes a Stakeholder Engagement Strategy to enable wider public participation in these exciting endeavours to enable greater sustainability for our rivers and streams.

The ORASECOM Orange-Senqu Joint Basin Survey was in focus on the Africa-wide annual Regional Centre of Expertise (RCE) Meeting held on the 2nd September. This meeting was co-hosted by the KwaZulu-Natal RCE. UKZN is a support partner to the RCE concept which is coordinated by the United Nations University based in Japan. The event attracted over 150 participants including RCEs from Egypt, Nigeria and Kenya. *By Jim Taylor*