



PROGRAMME

WORKSHOP ON BIODIVERSITY STATUS AND FUTURE RESEARCH NEEDS

VENUE: NRF-SAIAB, SOMERSET STREET, MAKHANDA

DATE: 11 JUNE 2025

ZOOM REGISTRATION LINK: [HTTPS://ZOOM.US/MEETING/REGISTER/FEMCJVC_](https://zoom.us/meeting/register/femcjvc_sdg4hjjgi7t4cw)
[SDG4HJJGI7T4CW](https://zoom.us/meeting/register/femcjvc_sdg4hjjgi7t4cw)

PASSCODE: 865617

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BACKGROUND

The Living Planet Index shows that the freshwater biodiversity associated with inland water ecosystems has declined more steeply than that on land or in the sea, although significant reductions are evident across all realms, according to estimations by GEO BON and FWBON, (December, 2022). The World Economic Forum lists biodiversity loss among the top risks facing humanity, alongside water crises, conflicts, climate change, and various other threats. South Africa is not immune from these challenges.

South Africa, with a landmass close to 1.2million km², has a diverse climate ranging from the drier west to the predominantly wetter eastern escarpment. The country is known as one of the 30 driest countries in the world, making it particularly vulnerable to climate change, and the spread of alien invasive species – both in aquatic and terrestrial. These threats have tremendous negative impact on river and estuarine baseflows, as well as wetlands, seriously affecting biodiversity. South Africa is ranked amongst the top 10 countries globally for plant species megadiversity and is one of the top 17 megadiverse nations overall. The total estimated length of SA rivers is just over 164 000km, with the Orange river being the longest at 2 092km, stretching from Lesotho to the Atlantic Ocean. The Limpopo river is another important transboundary system, shared with Botswana, Zimbabwe and Mozambique. South Africa also has a 3000km coastline stretching from Namibia to Mozambique, containing 290 estuaries of varying sizes and ecological status – some with open mouths, others closed. In addition to rivers and estuaries, the Department of Water and Sanitation has constructed approximately 350 large dams and hundreds of smaller ones to ensure water security for livelihoods and development. These water infrastructure systems play a critical role in supporting adaptation and resilience to environmental changes.

WHY BIODIVERSITY MATTERS?

According to legislation –particularly the National Water Act (Act, 36 of 1998) and the National Biodiversity Management Act (Act No. 10 of 2004) – biodiversity is not only to be protected, but also utilized in a sustainable manner, limiting risks of extinction. Biodiversity underpins essential services that are central to South Africa's economy, such as Eco-Tourism and supporting human livelihoods. In the aquatic realm, biodiversity is crucial in the determination of the environmental flow requirements, which are a priority along with human needs, before any water allocation can be authorized. Maintaining this balance is essential in ecosystem-based adaptation and resilience. Biodiversity services also contribute to job creation, food security and recreational activities, while healthy ecosystems support resilient communities and ensure water security. In South Africa, wetlands and estuaries are among the most threatened ecosystem types, with fish being the most at-risk group of species. There are several drivers to the degradation of ecological infrastructure, including pollution, the spread of invasive alien species and climate change. Additionally, rapid population growth places further pressure on sustainability. Without healthy wetlands, rivers, and estuaries, even protected biodiversity areas cannot be considered secured, hence the landscape approach. Ultimately, anthropogenic activities are the root cause of these threats, and it can only be through the human transformation and behavioural change can we safeguard our natural resources for future generations. There is an urgent need to restore habitats, strengthen the link between conservation and food security, and protect the biodiversity value chain from microbes, to species like the tiger fish in the aquatic systems.

OBJECTIVES

Taking into consideration the numerous challenges as outlined above, the workshop will aim to address key issues related to freshwater and estuarine systems. The objectives include:

1. Detailing the current state of knowledge on freshwater and estuarine species, including the prevailing pressures that they face, in particular climate change, habitat loss, deterioration of water quality and invasive species;
2. Discussion on ongoing efforts to control and manage invasive species to reduce their impact on aquatic biodiversity and the ecosystem services that it provides;
3. Discussion on the role of natural history collections and biobanks in understanding and informing protection of biodiversity;
4. Unpacking the vital role of the often overlooked microbiome in driving crucial ecosystem functions and services;
5. Highlighting the role of citizen scientists in biodiversity conservation and green economy.

AUDIENCE

The workshop will begin with high-level presentations on the state of biodiversity and existing research gaps in freshwater and estuarine ecosystems. These will be followed by a facilitated discussion to further unpack the presentations, exploring the social and economic benefits and drawbacks, and examining how to balance use and conservation through a nexus approach within a nature-based solutions framework.

Given the complexity and interlinked nature of these challenges, the workshop calls for multidisciplinary and multi sectoral participation. This includes indigenous knowledge holders, policymakers, business leaders, NGOs, and members of the academic and research community.

OUTPUT

The key output of the workshop will be a report on the proceedings, outlining a research agenda for the next decade. The report will include prioritization that identifies short-, medium-, and long-term innovations essential for reversing the ongoing decline in biodiversity.

DRAFT AGENDA

Programme Director: B Madikizela (Water Research Commission)

Time	PROCESS	RESPONSIBLE PARTY
09h45-10h00	Registration, meet and greet	All
10h00-10h15	Welcoming remarks: Future overview regarding the Strategic focus of SAIAB/NRF?	NRF Deputy CEO – Dr Angus Paterson
10h15-10h30	Welcoming note: Strategic RDI imperatives of the WRC: Healthy ecosystems for Healthy and Resilient Society?	WRC, CEO
10h30-10h50	Keynote Address: Global status of biodiversity and its impacts on the economy?	SANBI, Domitilla Raimondo
10h50-11h00	Teak Break	All
	Panellist Discussion	Facilitator: Prof Tommy Bornman
11h00-12h30	Facilitated discussions: 1. Ms Nancy Job (SANBI/DFFE) 2. Mr Molefi Mazibuko/Dr Stanley Nzama (DWS) 3. Dr Nonsikelelo Hlongwa (Stellenbosch University) 4. Prof Nikki James (NRF-SAIAB) 5. Ms Nonkoliso Mgibantaka (NRF-SAIAB)	SAEON – Prof Tommy Bornman (Assisted by Albert/Bonani)
12h30-13h00	Way forward and Closing remarks	Bonani/Albert
13h00	Lunch	