

Dr. TASCHA VOS

EDUCATION

- 1996 – 202_ **University of the Free State (UFS)**
- 2003 – 2015 *Philosophiae Doctor* (Ph.D. – Environmental Management) – obtained degree in 2015
- Attended and completed various courses to enhanced education and professional skills in various fields.
- Environmental management courses
 - Academic Writing courses
 - Computer skills courses
 - Statistics computer courses
- 2000 – 2002 Master of Science (M.Sc. – Limnology)
- 1999 Bachelor of Science Honours (B.Sc. Hon. – Limnology)
Attend a course in Entrepreneurship and Business management
- 1996 – 1998 Bachelor of Science (B.Sc. – Botany & Microbiology)

PROFESSIONAL EXPERIENCE

RESEARCH

CEM (UFS) representing member on the *IWQM/ IRWM Committee*, coordinated by the Department of Water and Sanitation, Free State (2019 – 202_).

Working on project in eastern Free State (2018 – 2019; building on research done for the National Heritage Council project) with the Centre for Gender and Africa Studies, UFS, as limnologist (water quality & algae).

CEM (UFS) representing member on the *Modder-Riet Catchment Management Forum*, coordinated by the Department of Water and Sanitation, Free State (2015 – 202_).

Worked on a National Heritage Council project (2009 – 2010) with the Centre for Africa Studies, UFS, as limnologist (water quality & algae).

Work on various WRC research projects (nr. K5/1587; K5/1798; K5/2149) (2006 - 2014) as part of the Centre for Environmental Management, UFS, research team as limnologist (water quality & algae).

Worked on the *State of the Modder, Riet and Caledon Rivers* biomonitoring project for BloemWater (2004 – 2011) and the Centre for Environmental Management (2011 –

2015) as part of the Centre for Environmental Management, UFS, research team as limnologist (water quality & algae).

Worked on the *State of the Namahadi and Harts Rivers* biomonitoring project for Sedibeng Water (2002 – 2003) as part of the Centre for Environmental Management, UFS, research team as limnologist (water quality & algae).

Worked on Loch Logan (urban impoundment in Bloemfontein) as part of student research and method training (2000 – 202_). This also forms part of the CEM's community service.

ACADEMIC

Participated as a lecturer at the Summer School on Aquatic Biomonitoring, a collaboration between Centre for Environmental Management (UFS) and Technical University of Dresden. 25-29 March 2019. Bloemfontein, South Africa.

Presented lectures in *Limnology* to Honours students (CEM, 2015 - 2016).

Presented a lecture in *Methods in Water Sampling* to Master students (CEM, 2014).

Supervision of Master students (2010 - 202_). 6 students graduated, 4 students currently registered.

Supervision of PhD students (2018 - 202_). 1 student currently registered.

Marked several *Master Degree mini theses* for the Centre for Environmental Management, University of the Free State, and two (2) for other South African Universities (2004 - 202_).

PROFESSIONAL ASSOCIATIONS

Memberships: Water Institute of Southern Africa (WISA/23967 – since 2009)
South African Council for Natural Scientific Professions (SACNASP/117007 – since 2017 as Water Resources Science)

ACHIEVEMENTS

Voted as the vice-chair of the *Modder-Riet Catchment Management Forum* at their April 2017 meeting

RESEARCH PUBLICATIONS

ARTICLES

- Cawood, S & Vos, T. 2021. Saving sacred waters: The future of Mohokare Valley sacred sites and water resources. *The Water Wheel* **20**(3): 28-31.
- Esterhuysen, S., Avenant, M., Redelinghuys, N., Kijko, A., Glazewski, J., Plit, L., Kemp, M., Smit, A. & Vos, A.T. 2018. Monitoring of unconventional oil and gas extraction and its policy implications: A case study from South Africa. *Energy Policy* **118**: 109-120. doi. 10.1016/j.enpol.2018.03.001
- Esterhuysen, S., Sokolic, F., Redelinghuys, N., Avenant, M., Kijko, A., Glazewski, J., Plit, L., Kemp, M., Smit, A., Vos, A.T. & Von Maltitz, M.J. 2017. Vulnerability mapping as a tool to manage the environmental impacts of oil and gas extraction. *Royal Society Open Science* **4**:171044 (1-16) doi: 10.1098/rsos.1710
- Cawood, S. & Vos, A.T. 2016. Water quality as bio-cultural screening indicator for the integrity of informal heritage sites. *Water SA* **42**(4): 516-527.
- Esterhuysen, S., Avenant, M., Redelinghuys, N., Kijko, A., Glazewski, J., Plit, L., Kemp, M., Smit, A., Vos, A.T., & Williamson, R. 2016. A review of biophysical and socio-economic effects of unconventional oil and gas extraction – Implications for South Africa. *Journal of Environmental Management* **184**(2): 419-430.
- Seaman, M., Watson, M., Avenant, M., King, J., Joubert, A., Barker, C., Esterhuysen, S., Graham, D., Kemp, M., Le Roux, P., Prucha, B., Redelinghuys, N., Rossouw, L., Rowntree, K., Sokolic, F., Van Rensberg, L., Van der Waal, B., Van Tol, J. & Vos, T. 2016. DRIFT-ARID: A method for assessing environmental water requirements (EWRs) for non-perennial rivers. *Water SA* **42**(3): 356-366.
- Seaman, M., Watson, M., Avenant, M., Joubert, A., King, J., Barker, C., Esterhuysen, S., Graham, D., Kemp, M., Le Roux, P., Prucha, B., Redelinghuys, N., Rossouw, L., Rowntree, K., Sokolic, F., Van Rensberg, L., Van der Waal, B., Van Tol, J. & Vos, T. 2016. DRIFT-ARID: Application of a method for environmental water requirements (EWRs) in a non-perennial river (Mokolo River) in South Africa. *Water SA* **42**(3): 368-382.
- Prucha, B., Graham, D., Watson, M., Avenant, M., Esterhuysen, S., Joubert, A., Kemp, M., King, J., Le Roux, P., Redelinghuys, N., Rossouw, L., Rowntree, K., Seaman, M., Sokolic, F., Van Rensberg, L., Van der Waal, B., Van Tol, J. & Vos, T. 2016. MIKE-SHE integrated groundwater and surface water model used to simulate scenario hydrology for input to DRIFT-ARID: the Mokolo River case study. *Water SA* **42**(3): 384-398.
- Buschke, F.T., Avenant, M.F., Esterhuysen, S., Kemp, M.E., Kruger, F.J., Ololade, O.O., Seaman, M.T., Vos, A.T. & Watson, M. 2016. Producing the next

generation of water resource experts in South Africa. *South African Journal of Science* **112**(3-4): 1-4.

Vos, A.T. & Cawood, S. 2010. The Impact of Water Quality on Informally Declared Heritage Sites: A Preliminary Study. *Water SA Young Water Professionals Special Edition 2010* **36**(2): 185-192.

Vos, A.T. & Roos, J.C. 2005. Causes and Consequences of Algal Blooms in Loch Logan, an Urban Impoundment. *International Water & Irrigation* **25**(3): 28-30. (Published with the permission of the South African Water Association)

Vos, A.T. & Roos, J.C. 2005. In-lake management of Loch Logan, an Urban Impoundment (peer reviewed). Seminar presented at the 11th Annual Conference of the International Association for Impact Assessment (IAIA), South African Affiliate, at Thaba’Nchu Sun, Free State

Vos, A.T. & Roos, J.C. 2005. Causes and Consequences of Algal Blooms in Loch Logan, an Urban Impoundment. *Water SA July 2005* **31**(3): 385-392.

REPORTS

- Published Reports

Esterhuysen, S.; Avenant, M.F.; Watson, M.; Redelinghuys, N.; Kijko, A.; Glazewski, J.; Plit, L.A.; Kemp, M.; Smit, A.; Sokolic, F.; Vos, A.T.; Reynolds, D.; von Maltitz, M.; van Tol, J.; Bragg, C.; van Soelen, B. & Ouzman, S. 2014. *Development of an interactive vulnerability map and monitoring framework to assess the potential environmental impact of unconventional oil and gas extraction by means of hydraulic fracturing*. WRC Report no; 214/1/14 (K5/2149). Water Research Commission, Pretoria.

Esterhuysen, S., Avenant, M.F., Watson, M., Redelinghuys, N., Kijko, A., Glazewski, J., Plit, L.A., Kemp, M., Smit, A., Sokolic, F., Vos, A.T. and Von Maltitz, M. 2014. *Interactive vulnerability map and monitoring framework for unconventional oil and gas extraction by means of hydraulic fracturing*. DVD containing interactive map and report. DVD to WRC as part of WRC Report No. 2149/1/14. Water Research Commission. Pretoria.

Avenant, M.F., Esterhuysen, S., Glazewski, J., Kemp, M., Kijko, A., Redelinghuys, N., Smit, A., Vos, A.T. and Watson, M. 2013. *Development of an interactive vulnerability map and preliminary screening level monitoring protocol to assess the potential environmental impact of unconventional gas mining by means of hydraulic fracturing: Monitoring protocol*. WRC project deliverable. Water Research Commission, Pretoria.

Avenant, M.F., Esterhuysen, S., Kemp, M., Kijko, A., Redelinghuys, N., Smit, A., Von Maltitz, M., Vos, T., Watson, M. 2013. *Development of an interactive vulnerability map and preliminary screening level monitoring protocol to assess the potential environmental impact of unconventional gas mining by means of*

hydraulic fracturing: Vulnerability map. WRC project deliverable. Water Research Commission, Pretoria.

Seaman, M.T., Watson, M., Avenant, M.F., Joubert, A.R., King, J.M., Barker, C.H., Esterhuysen, S., Graham, D., Kemp, M.E., le Roux, P.A., Prucha, B., Redelinghuys, N., Rossouw, L., Rowntree, K., Sokolic, F., van Rensburg, L., van der Waal, B., van Tol, J. and Vos, A.T. 2013. *Testing a methodology for Environmental Water Requirements in non-perennial rivers. The Mokolo River Case Study.* WRC Report no; TT 579/13. Water Research Commission, Pretoria.

Esterhuysen, S., Adendorff, J., Avenant, M., Bragg, C., Cillie, D., Enke, G., Hutter, N., Kemp, M., Kijko, A., Louw, H., Nell, A., Ouzman, S., Prinsloo, H., Redelinghuys, N., Reynolds, D., Smit, A., Sokolic, F., Van Soelen, B., Van Tol, J., Vos, A.T. and Watson, M. 2012. *Report on the background review of impacts related to hydraulic fracturing and available databases for vulnerability indicators.* Water Research Commission Project K5/2149. Report for the Water Research Commission. Pretoria.

Rossouw L. and Vos AT. 2010. *Water Quality Component of testing a prototype Environmental Water Requirement methodology on the Mokolo River.* Specialist report as part of the WRC project K5/1798. Water Research Commission, Pretoria.

Cawood, S. & Vos, T. 2010. Section 2: Site Descriptions. In: S. Cawood (ed). *NHC Project Report – Oral Histories and the Cultural Uses of Clay at Sacred Sites in the Free State.* Centre for Africa Studies.

Cawood, S., Vos, T. & Fwero, P. 2010. Section 10: Risks and Challenges. In: S. Cawood (ed). *NHC Project Report – Oral Histories and the Cultural Uses of Clay at Sacred Sites in the Free State.* Centre for Africa Studies.

Rossouw L and Vos AT. 2008. Water Quality Specialist Report. In: Seaman MT, Avenant MF, Watson M, King J, Armour CH, Dollar E, du Preez PJ, Hughes D, Rossouw L, van Tonder G. 2010. *Developing a method for determining the environmental water requirements for non-perennial Systems.* Water Research Commission Report No. TT 459/10. Water Research Commission. Pretoria.

Rossouw, L. & Vos, T. 2008. *Environmental water requirements in non-perennial systems. Water Quality Component.* Draft. Part of the Environmental Water Requirements in Non-perennial Systems WRC Project.

Watson, M., Avenant, M.F., du Plessis, J.J. & Vos, A.T. 2007. Ecological character of the Sepane and Koranna Spruit. In: G.J. Hoon, M. Watson, J. Armour & L. Letsela, 2007. *The Free State River Ecosystem Project – the Koranna and Sepane Spruit in the Modder River Catchment Area.* National Grasslands Biodiversity Programme – Free State Rivers Ecosystem Project. A report by H2ON Environmental Specialists, the Centre for Environmental Management, Laughing Waters & Netgroup for SANBI, Pretoria. Appendix C: p.1-47.

- Internal & Unpublished Reports

- 5 x Internal Reports of the *State of the Modder River– a Biomonitoring report* from 2011 to 2015 for Centre for Environmental Management, University of the Free State, Bloemfontein. South Africa.
- 30 x Reports of the *State of the Modder River– a Biomonitoring report* from 2004 to 2011 for Bloem Water by the Centre for Environmental Management, University of the Free State, Bloemfontein, South Africa.
- 2 x Reports of the *State of the Namahadi and Harts Rivers – a Biomonitoring report* during 2003 for Sedibeng Water by the Centre for Environmental Management, University of the Free State, Bloemfontein, South Africa.

CONFERENCE PAPERS / SEMINARS

(Underlined author were the presenting author)

Vos, A.T. & Van Ginkel, C.E. 2017. *Periphyton as a biomonitoring tool in non-perennial, regulated rivers in central South Africa*. Paper presented at the 54th Annual South African Society of Aquatic Scientists (SASAqS) conference. 25 – 28 June 2017. Boksburg, South Africa.

Vos, A.T. & Van Ginkel, C.E. 2016. *“Between a rock and a hard place”: The complexities of using periphyton as a biomonitoring tool in non-perennial, regulated rivers in central South Africa*. Paper presented at the 33rd Annual International Society of Limnology (SIL) congress. 31 July – 5 August 2016. Torino, Italy.

Vos, A.T., Seaman, M.T. & Scott, W. 2013. *Comparing the effect of wet and dry years on periphyton in the Modder River*. Paper presented at the 1st Annual African Water Symposium at the University of the Free State. 19-21 June 2013. Bloemfontein, South Africa.

Watson, M. Seaman, M.T., Avenant, M.F., King, J., Armour, J., Barker, C., Dollar, E., du Preez, J.P., Hughes, D., Joubert, A., Kemp, M. Rossouw, L., Rowntree, K., van der Waal, B. van Tonder, G. and Vos, A.T. 2012. *The development of an Environmental Water Requirement (EWR) method for non-perennial rivers*. Paper presented at the 49th Annual South African Society of Aquatic Scientists (SASAqS) conference. 1-5 July 2012. Cape St. Francis Resort, South Africa.

Watson, M. Seaman, M.T., Avenant, M.F., King, J., Armour, J., Barker, C., Dollar, E., du Preez, J.P., Hughes, D., Joubert, A., Kemp, M. Rossouw, L., Rowntree, K., van der Waal, B. van Tonder, G. and Vos, A.T. 2012. *Development of an Environmental Water Requirement (EWR) method for non-perennial rivers*. Paper presented at the IWA World Congress on Water, Climate and Energy. 14-17 May 2012. Dublin, Ireland.

Cawood, S. & Vos, A.T. 2011. *Water quality as bio-culture screening indicator for the integrity of informal heritage sites*. Paper presented at the 48th Annual South African Society of Aquatic Scientists (SASAqS) Conference. 26-30 June 2011. Ithala Game Reserve, South Africa.

Rossouw, L. & Vos, A.T. 2010. *The Challenges of interpreting water quality in non-perennial rivers*. Paper presented at the 47th Annual South African Society of Aquatic Scientists (SASAqS) Conference. 13-15 June 2010. Augrabies Falls National Park, South Africa.

Vos, A.T. & Cawood, S. 2010. *The impact of water quality on informally declared heritage sites: a preliminary study*. Paper presented at the 1st Regional Conference of Young Water Professionals (YWP). 19-20 January 2010. CSIR in Pretoria, South Africa.

Rossouw, L. & Vos, A.T. 2009. *Challenges in the methodology of determining the water quality reserve in non-perennial rivers*. Paper presented at the International Conference on Implementing Environmental Water Allocations (IEWA). 22-26 February 2009. Port Elizabeth, South Africa.

Rossouw, L. & Vos, A.T. 2008. *Environmental Water Requirements: Determining water quality required in non-perennial river systems, South Africa*. Paper presented at the 28th International Symposium of the North American Lake Management Society. 11-14 November 2008. Lake Louise, Alberta, Canada.

Vos, A.T. 2008. *Influence of flow and nutrients on algae (phytoplankton & periphyton) in the Modder River*. Paper presented at the Orange River Basin: the Resource Symposium. 12-13 November 2008. Centre for Environmental Management, University of the Free State, South Africa.

Vos, A.T. & Roos, J.C. 2005. *In-lake management of Loch Logan, an Urban Impoundment*. Seminar presented at the 11th Annual Conference of the International Association for Impact Assessment (IAIA), South African Affiliate. 29-31 August 2005. Thaba'Nchu Sun, Free State, South Africa.

POSTERS

(Underlined author were the presenting author)

Vos, A.T. 2011. *A decade of physico-chemical change: Caledon, Modder and Riet Rivers*. Poster presented at the 48th Annual South African Society of Aquatic Scientists (SASAqS) Conference. 26-30 June 2011. Ithala Game Reserve, South Africa.

Seaman, M.T., Avenant, M.F., Armour, R.J., Barker, C.H., Dollar, E., du Plessis, J.J., du Preez, P.J., Hughes, D., King, J., Rossouw, L., van Tonder, G., Vos, A.T. & Watson, M. 2007. *Environmental Water Requirements (EWRs) of a non-perennial river. The Seekoei River Example*. Poster presented at the 10th International River Symposium & Environmental Flows conference. 3-6 September 2007. Brisbane, Australia.

Roos, J.C. & Vos A.T. 2006. *Sediment quality and water interaction in Kamfers Dam, a saltpan, Kimberley*. Poster presented at the 41st Annual South African Society of Aquatic Scientists (SASAqS) Conference. 19-23 June 2006. Maputo, Mozambique.

Vos, A.T. & Roos, J.C. 2004. *Causes and Consequences of Eutrophication in Loch Logan, an Urban Impoundment*. Poster presented at the 39th Annual South African Society of Aquatic Scientists (SASAqS) Conference in Midrand, Gauteng

Vos, A.T., Potgieter, N. & Roos, J.C. 2003. *Does phytoplankton Taxonomic Composition and Species Diversity Correlate with the Nutrient Levels in the Organic Enriched Site Rustfontein inflow, Modder River?* Poster presented at the Fifth Biennial International Conference of the Society of South African Geographers (SSAG) in Bloemfontein, Free State.

Vos, A.T. & Roos, J.C. 2002. *Limnological Characteristics of Loch Logan – an urban Impoundment, Bloemfontein*. Poster presented at the 37th Annual SASAqS Conference in Bloemfontein, Free State.

Vos, A.T. & Roos, J.C. 2001. *Chemical Control of Cyanobacterial Blooms in Loch Logan, Bloemfontein, RSA*. Poster presented at the 36th Annual SASAqS Conference at Aventura Eco Eiland, Northern Province.

POPULAR ARTICLES

Vos, T. & Avenant, M. 2019. Bad-tasting water not toxic. *Express-News* (News24) 06 February 2019: p2. <https://www.news24.com/SouthAfrica/Local/Express-News/bad-tasting-water-not-toxic-20190205>

OTHER

Vos, A.T. 2021. She appeared with Dr Stephanie Cawood (Centre for Africa Studies, UFS) in a feature article “*Testing the waters: how water quality could be used at informal heritage sites*” on the University of the Free State’s *News Archive*, on 04 January 2021. <https://www.ufs.ac.za/templates/news-archive-item/campus-news/2021/january/testing-the-waters-how-water-quality-could-be-used-at-informal-heritage-sites>