



**Professional Registrations:**

- SACNASP (115518)

**Occupation:**

- Snr. Environmental Scientist

**Specialisation:**

- Project Management
- Environmental Authorisations
- Environmental Management
- The review of BARs, EIARs, and EMPr's

**Education:**

- BSc (Zoology and Physiology), 2007  
University of Limpopo  
Turfloop Campus

**Tebogo Mapinga**

**KEY EXPERIENCE**

Tebogo is a professional environmental scientist with 11 years' experience in the environmental management field in both public and private sectors. Her competencies lie in management and co-ordination of environmental projects, environmental impact assessments, compliance monitoring ensuring compliance to legislation and guidelines and public participation for small and large scale projects.

**PROJECT EXPERIENCE**

**2017 Thabamesti Coal Fired Power Station**

Permitting

**2017 Richards Bay CCPP Power Project**

Environmental Screening and Environmental Impact Assessment – EIA

**2017 Roggeveld Wind Farm**

Environmental Management Programme (EMPr) Amendment and all work required to reach financial close- permitting (Building Energy and G7)

**2017 Klawer Wind Farm**

EMPr Amendment and all work required to reach financial close- permitting (Building Energy and G7)

**2017 Roggeveld Wind Farm**

Environmental Management Programme (EMPr) Amendment and all work required to reach financial close- permitting (Building Energy and G7)

**2017 Adams PV Facility Upgrading of Charles Street**

All work required to reach financial close- permitting (Aurora Power Solutions (Pty)

**2016 Bellatrix PV Facility**

All work required to reach financial close- permitting (Aurora Power Solutions (Pty) Ltd)

**2016 Great Karoo EA amendment**

**2015 Karusa Wind Farm Jhb**  
Part 2 EA Amendments (Enel Green Power)

**PROJECT EXPERIENCE (continued)**

**2015 Soetwater Wind Farm**

Part 2 EA Amendments (Enel Green Power)

**2015-17 Gunstfontein Wind Energy Facility**

EIA (ACED)

Basic Assessment Report (ACED)

**2015 Acwa Power Solar Reserve Redstone Solar Thermal Power Plant**

EMPr amendment

**2015 Sirius Phase One Solar PV Facility**

All work required to reach financial close- permitting) (Aurora Power Solutions (Pty) Ltd)

**2015 Nxuba Wind Farm**

All work required to reach financial close- permitting (ACED and Enel Green Power)

**2015 Upington Two CSP Facility**

EIA (Abengoa Solar South Africa (Pty) Ltd)

**2015 Pofadder 3**

4 EIA Processes (Mainstream Renewable Power South Africa)

4 separate Basic Assessment Reports (Mainstream Renewable Power South Africa)

**2009 Castle Wind Energy Facility**

EIA (juwi Renewable Energies)

**2009 Spitskop Wind Energy Facility**

Renewable Energy Systems Southern Africa (Pty) Ltd – EIA (RES SA);

**2009 Bobididi Solar Facility**

Environmental Screening- Root 60FOUR Energy (Pty) Ltd

**2009 Great Fish River Watercourse Crossing BAR**

African Clean Energy Developers (Pty) Ltd (ACED)

**2009 Bedford Watercourse Crossing BAR-**

**African Clean Energy Developers (Pty) Ltd (ACED)**

**2008 EIA at Phaki Phakanani Environmental Consultants**

- Construction of Khetho Bridge, Greater Giyani Local Municipality
- Demolition and Relocation of Malamulele High School
- Construction of Malamulele Shopping Complex
- The Subdivision of land in Ellisrus
- Construction of the Senwabarwane Filling Station
- Residential Development in Tlapeng Village
- Township Development in Maphosa Village

- Establishment of a Piggery in Mogalakwena Local Municipality
- Establishment of two Piggeries in Elias Motsoaledi Local Municipality
- Establishment of a Piggery in Modimolle Local Municipality
- Township Development in Rietfontein
- Public Participation and Section 24G Application for the National Taxi Scrapping Project

**2008 EIA at Strategic Environmental Focus**

- Establishment of a Guest House (ECA application)
- Establishment of a Waste Management Depot in Rustenburg
- Establishment of a Waste Management Depot in Tzaneen and Nkowa-Nkowa
- Langkuil Industrial Development, ( Environmental Manager and Project Manager);
- Township Development in Reitfontein
- Upgrading of the BP Golf Course
- Construction of the BP Soshanguve VV Filling Station
- Construction of the BP Soshanguve ZZ Filling Station
- Shell Filling Stations( Project Manager and Client Liaison
- Eskom- Komati Water Augmentation
- Rainbow Junction Residential Development
- Township Development in Delmore Park Extension 7
- West Rand District Municipality- Bulk Water Supply
- West Rand District Municipality Air Quality Assessment
- Lonmin K4 Shaft Mine Upgrading
- Westlake Residential Development
- Montana Spruit Upgrading

**EMPLOYMENT RECORD**

<b>Present</b>	Zitholele Consulting	Senior Environmental Scientist
<b>2010</b>	Savannah Environmental	Principal Env. Manager
<b>2013</b>	DEA	Env. Officer Specialised duction
<b>2010</b>	Strategic Environmental Focus	Env. Project Manager
<b>2008</b>	Phaki Phakanani Environmental Consultants	Environmental Consultant



## Dr. Mathys Vosloo

### Professional Registrations:

- (SACNASP) South African Council for Natural Scientific Professions
- (IAIAsa) International Association for Impact Assessment – South Africa

### Occupation:

- Senior Environmental Scientist

### Specialisation:

- Environmental and Social Impact Assessments
- Strategic Environmental Assessments
- Estuarine Ecological Assessments
- Project Management and GIS

### Education:

- Ph.D., Zoology, 2012  
Nelson Mandela Metropolitan University
- M.Sc., Zoology, 2003  
University of Port Elizabeth
- B.Sc. Hons, Zoology, 2001  
University of Port Elizabeth
- B.Sc., Zoology and Botany, 2000  
University of PE

### KEY EXPERIENCE

Dr. Mathys Vosloo is a well-qualified and technically proficient environmental and natural scientist with more than 12 years environmental management experience. His experience include Environmental Impact Assessments (EIAs) and the development of Environmental Management Programmes during environmental assessments of construction projects, environmental compliance monitoring and reporting, and Environmental Control Officer (ECO) services for construction projects. Recent experience includes project management and execution of large waste related projects, such as the application for development of Ash Disposal Facilities, and large linear projects such as the management EIA process for the implementation of extensive power lines for renewable projects. Mathys also has substantial experience in Geographical Information Systems (GIS), creating and analysing digital terrain models, runoff and stream flow analysis, stormwater design and map-making for projects in Africa. Further experience include the development and completion of State Of the Environment Reporting (SOER), Strategic Environmental Assessments (SEA) and feasibility studies. Mathys' experience in natural science include aquatic ecological assessments, project management and sample collection in several west, south and east coast estuaries, including ecosystem analysis of estuaries in the Eastern Cape and former Transkei area.

### PROJECT EXPERIENCE

- |                    |   |                      |
|--------------------|---|----------------------|
| <b>2017</b>        | <b>PPP and WOP for Kusile PS 60year ADF</b>   | <b>R 2.8m</b>        |
|                    | Public participation process for Wetland Offset Strategy and implementation of Wetland Offset Plan for the Kusile Power Station 60year Ash Disposal Facility.             |                      |
| <b>2017</b>        | <b>BA for KEMJV slimes pipeline</b>   | <b>R 230 000</b>     |
|                    | Basic Assessment for construction of slimes pipeline for Kimberley Ekapa Mine Joint Venture, Northern Cape.   |                      |
| <b>2016 - 2017</b> | <b>Asbestos Mine Rehabilitation Programme</b>   | <b>R 1.3 million</b> |
|                    | Undertaking environmental site investigations and project scoping for the rehabilitation of 10 derelict and abandoned asbestos mines in Limpopo and Mpumalanga Provinces. |                      |

## PROJECT EXPERIENCE (continued)

<b>2016</b>	<b>Walkdown &amp; WULA for Kuruman Powerline upgrade</b>	<b>R 355 000</b>
	Specialist walkdown of approved 132 kV powerline servitude between Kuruman and Kathu, Northern Cape.	
<b>2016 - 2017</b>	<b>EA Amendment for Kuruman Powerline Upgrade</b>	<b>R 60 000</b>
	EA Amendment application i.t.o. EIA 2014 regulations for amendment to the approved 132 kV powerline corridor between Hotazel, Kuruman and Kathu, Northern Cape.	
<b>2016</b>	<b>Breede-Gourits CMS: Estuarine component</b>	<b>R 81 000</b>
	Estuary Situation Assessment to inform the Breede-Gourits Catchment Management Strategy for Breede-Gourits Water Management Area.	
<b>2016 - 2017</b>	<b>BA for Tshepisoong Extension 4 development</b>	<b>R 198 000</b>
	Basic Assessment for Mixed Business and Residential Development within Portion 64 of Farm Vlakfontein 238 IQ, Tshepisoong Extension 4, Johannesburg West, Gauteng Province.	
<b>2016 - 2017</b>	<b>BA for Patensie Housing Development</b>	<b>R 283 000</b>
	Basic Assessment for the Patensie Housing Development, Eastern Cape.	
<b>2016</b>	<b>Specialist Walkdown for Kuruman Powerline upgrade</b>	<b>R 355 000</b>
	Specialist walkdown of approved 132 kV powerline servitude between Hotazel and Kuruman, Northern Cape.	
<b>2016</b>	<b>Solar Park EA Amendment</b>	<b>R 248 000</b>
	Environmental Authorisation (EA) Amendment application i.t.o. EIA 2014 regulations for amendments to the Solar Park to Nieuwehoop 400 kV power line corridor near Upington, Northern Cape.	
<b>2015 - 2016</b>	<b>Solar Park WULA</b>	<b>R 547 000</b>
	WULA for Solar Park to Nieuwehoop 400 kV powerline development near Upington, Northern Cape.	
<b>2015 - 2016</b>	<b>BA Clanwilliam Weirs</b>	<b>R 409 000</b>
	Proposed Re-alignment of the Bulshoek Dam and Doring River Weirs near Clanwilliam, Western Cape.	
<b>2015 - 2016</b>	<b>BA Klipspruit Valley</b>	<b>R 244 000</b>
	BA and WULA for the Klipspruit Valley Road Upgrade.	
<b>2014 - 2016</b>	<b>EIA Koffiefontein Slimes Dam</b>	<b>R1 million</b>
	EIA for the new Koffiefontein Slimes Dam Development, Kimberley.	
<b>2014 - 2015</b>	<b>BA and WULA Kuruman Upgrade</b>	<b>R1.3 million</b>
	BA and WULA for 132kV power line upgrade from Hotazel to Kuruman and Kathu, Northern Cape.	
<b>2013 - 2016</b>	<b>EIA Kendal 30 year Ash Disposal Facility</b>	<b>R6 million</b>
	EIA, WMLA and WULA for a new Ash Disposal Facility for Kendal Power Station near Ogies in Mpumalanga.	
<b>2013 - 2014</b>	<b>Design of 3 canals</b>	<b>R 700 000</b>
	3 x BAs for the proposed prevention of water ingress into previously mined out areas in the Witwatersrand Mining Basin (canalisation of 3 streams), Gauteng.	
<b>2013 - 2014</b>	<b>BA for Vaalbank Switching Station</b>	<b>R 380 000</b>
	Basic Assessment for Vaalbank Switching Station and 2 x 88 kV Powerlines, Free State.	

## PROJECT EXPERIENCE (continued)

<b>2012 - 2015</b>	<b>EIA Solar Park</b>	<b>R5 million</b>
EIA, EMP & WULA for the Solar Park 132/400 kV Sub Station and Associated lines, Northern Cape.		
<b>2012 - 2015</b>	<b>Kusile 60 year Ash Disposal Facility</b>	<b>R11 million</b>
EIA, WML and WULA for the 60 year Ash Disposal Project near Balmoral in Mpumalanga.		
<b>2012 - 2015</b>	<b>WULA Wilge Pipeline</b>	<b>R 900 000</b>
WULA for the sewage and water pipeline from Wilge Township to Phola, Mpumalanga.		
<b>2012</b>	<b>BA Kouga Dam Wall</b>	<b>R 250 000</b>
The rehabilitation of the Kouga Dam wall and associated mining activities.		
<b>2012</b>	<b>EMP City of Cape Town Stormwater</b>	<b>R1.5 million</b>
Maintenance and management interventions undertaken by the City of Cape Town in its surface stormwater systems.		
<b>2012</b>	<b>BA Melkhout Powerlines</b>	<b>R 100 000</b>
The installation of 132kV transmission lines from Melkhout to Dieprivier, including the construction of a new substation at Dieprivier, Cacadu District.		
<b>2012</b>	<b>BA Diepriver Powerlines</b>	<b>R 100 000</b>
The installation of 132kV transmission lines from Dieprivier to Kareedouw, including the extension of the existing substation at Kareedouw, Cacadu District.		
<b>2012</b>	<b>BA Patensie Powerlines</b>	<b>R 100 000</b>
The installation of 132kV transmission lines from Melkhout to Patensie, including the construction of a new substation at Patensie, Cacadu District.		
<b>2012</b>	<b>Mmnthatha River System</b>	
Catchment delineation and stream calculation for the Mnthatha River System, GIBB Durban.		
<b>2011 - 2012</b>	<b>PRASA Passenger rail and shunting yard proposed sites</b>	
Environmental Screening for the PRASA passenger rail and shunting yard proposed sites in Cape Town, Gauteng and Durban.		
<b>2010 - 2012</b>	<b>ATTP Flow Limiters installation</b>	
NMBM Assistance to the poor (ATTP) and schools leakages repairs and flow limiters installation.		
<b>2010 - 2012</b>	<b>ATTP Database Management</b>	<b>R4 million</b>
NMBM Assistance to the poor (ATTP) and schools leakages repairs and flow limiters installation database management.		
<b>2010 - 2011</b>	<b>Nelson Mandela Bay Provincial Department of Housing</b>	
Nelson Mandela Bay and Cradock low cost housing rectification audits. Management of incoming and outgoing GIS data and GIS mapping, Provincial Department of Housing.		
<b>2010 - 2011</b>	<b>ECO Bulk Stormwater Infrastructure Motherwell</b>	
Installation of bulk storm water infrastructure in Motherwell NU29 and 30 and Implementation of an artificial wetland at the Motherwell stormwater canal outlet structure.		

## PROJECT EXPERIENCE (continued)

<b>2010</b>	<b>BA McAdam Street Upgrade</b>	<b>R 60 000</b>
The extension of McAdam Street from Worraker to Mangold Street, NMBM.		
<b>2009 - 2011</b>	<b>EIA Motherwell Housing Development</b>	<b>R 270 000</b>
Motherwell NU 31 housing development, NMBM.		
<b>2009 - 2011</b>	<b>Coega Integrated Stormwater Management Plan</b>	
Coega IDZ Eastern Sector Integrated Stormwater Management Plan, Coega Development Corporation.		
<b>2009 - 2011</b>	<b>EIA KougaWind Farm</b>	<b>R 350 000</b>
Kouga 300 MW wind farm, Kouga Local Municipality.		
<b>2009 - 2010</b>	<b>ECO Swartkops River Artificial Wetland</b>	
Swartkops River, NMBM.		
<b>2009 - 2010</b>	<b>ECO Humewood Road Upgrade</b>	
Realignment of the S-bend section of Humewood Road in Humewood.		
<b>2009 - 2010</b>	<b>ECO Paapenkuils Sewer Augmentation</b>	
Paapenkuils Main Sewer Augmentation in Port Elizabeth NMBM.		
<b>2009 - 2010</b>	<b>SOER State of the Environment Report</b>	<b>R 350 000</b>
NMBM State of the Environment Report.		
<b>2009 - 2010</b>	<b>ISWMP Coega IDZ</b>	<b>R 350 000</b>
Coega IDZ Eastern Sector Integrated Stormwater Management Plan, CDC.		
<b>2009 - 2010</b>	<b>SOER Flood Plain and Spatial Analysis</b>	
Nelson Mandela Metropolitan Municipality SOER flood plain and spatial analysis, NMBM.		
<b>2009 - 2010</b>	<b>EIA – Red Cap Developments</b>	
Kouga Local Municipality wind farm development EIA, RedCap Developments.		
<b>2008 - 2009</b>	<b>Port Harcourt City Open Space System Plan</b>	
Port Harcourt City Open Space System Plan, Government of Nigeria.		
<b>2008 - 2009</b>	<b>ECO Kwazakhele stormwater infrastructure</b>	
Construction of stormwater detention ponds and upgrading of stormwater infrastructure in Kwazakhele, Phase 3.		
<b>2008</b>	<b>ECO Sherwood Road Upgrade</b>	
Upgrading of Devon and Fairley Roads in Port Elizabeth, NMBM.		
<b>2008</b>	<b>OR Tambo District Municipality water conservation and demand management</b>	
OR Tambo District Municipality water conservation and demand management.		
<b>2008</b>	<b>SOER Eden District Municipality</b>	
Eden District Municipality SOER, Eden District Municipality.		
<b>2008</b>	<b>Kouga Local Municipality catchment and flood attenuation analysis</b>	
Jeffreys Bay Marina Martinique catchment and flood attenuation analysis, Kouga Local Municipality.		
<b>2008</b>	<b>EIA Bethelsdorp Housing Development</b>	<b>R 230 000</b>
Bethelsdorp Phase 3 social housing development, NMBM.		

## PROJECT EXPERIENCE (continued)

<b>2008</b>	<b>BA Beacon Maritime Navigational Structure Upgrade</b> Beacon maritime navigational structure upgrading, NMBM.	<b>R 60 000</b>
<b>2008</b>	<b>BA Moffet Dam Rehabilitation</b> Moffet Dam breach remedial works, Kouga Local Municipality.	<b>R 60 000</b>
<b>2008</b>	<b>BA Pollok Beach light mast installation</b> Pollok Beach light mast installation, NMBM.	<b>R 50 000</b>
<b>2008</b>	<b>BA Humewood Road Re-alignment</b> Humewood Road re-alignment along the S-bend section, NMBM.	<b>R 60 000</b>
<b>2008</b>	<b>SOER Hessequa Local Municipality</b> Hessequa Local Municipality State of the Environment Summary Report.	<b>R 200 000</b>
<b>2008</b>	<b>SEA Coastline redevelopment</b> North End Coastline redevelopment SEA, NMBM.	<b>R 250 000</b>
<b>2008</b>	<b>Mzimkhulu River catchment and flood attenuation analysis</b> Mzimkhulu River catchment and flood attenuation analysis, Umzimkhulu Municipality.	
<b>2008</b>	<b>PE Paapenkuils River catchment and flood attenuation analysis</b> Port Elizabeth Paapenkuils River catchment and flood attenuation analysis, NMBM.	
<b>2007 - 2008</b>	<b>ECO Mavuso Road Upgrade</b> Construction of Mavuso Road in Kwazakhele, NMBM.	
<b>2007</b>	<b>BA Jagersfontein Chicken Farm</b> Jagersfontein farm 432 commercial production of chicken and operation of an abattoir, Kouga Local Municipality.	<b>R 40 000</b>
<b>2007</b>	<b>BA Zwide Roads Upgrade</b> Tarring of roads in Zwide, NMBM.	<b>R 55 000</b>
<b>2007</b>	<b>BA McAdam Street Construction</b> Construction and extension of McAdam Street, NMBM.	<b>R 40 000</b>
<b>2007</b>	<b>BA Tygerbay Reconstruction</b> Repair and reconstruction of water retaining structures at Tyger Bay EIA NMBM.	<b>R 60 000</b>
<b>2007</b>	<b>BA Lorraine Infill development</b> Erf 306 Lorraine Infill development, NMBM.	<b>R 40 000</b>
<b>2007</b>	<b>BA Sherwood Roads Upgrade</b> Tarring of roads in Sherwood, NMBM.	<b>R 40 000</b>
<b>2007</b>	<b>BA Zwide Roads Upgrade</b> Tarring of Ntsele, Mkutuka, Nanto and Vabaza Streets in Zwide, NMBM.	<b>R 40 000</b>
<b>2007</b>	<b>BA Pollok Beach Parking Lot</b> Pollok Beach, Summerstrand, parking lot relocation, NMBM.	<b>R 50 000</b>
<b>2007</b>	<b>BA Uitenhage Roads Upgrade</b> Tarring of Dube, Grootboom and Luzipho Streets in Uitenhage, NMBM.	<b>R 40 000</b>

**PROJECT EXPERIENCE (continued)**

<b>2007</b>	<b>BA PE ICC Site Assessment</b>	<b>R 150 000</b>
	Port Elizabeth International Convention Centre Rapid site assessment, NMBM.	
<b>2007</b>	<b>EIA Exemptions Applications Motherwell</b>	
	Motherwell/Coega outfall canal upgrade.	
<b>2007</b>	<b>EIA Exemptions Applications Lorraine Infill Development</b>	
	Erf 17, Lorraine, infill development.	
<b>2007</b>	<b>EIA Exemptions Applications Korsten Upgrade</b>	
	Korsten Modal Interchange Upgrade.	
<b>2007</b>	<b>GIS SANRAL outdoor advertising opportunities</b>	
	SANRAL outdoor advertising opportunities in the Eastern Cape, SANRAL.	
<b>2007</b>	<b>Coega Integrated Stormwater Plan</b>	
	Coega Integrated Stormwater Plan, Coega Development Corporation.	
<b>2007</b>	<b>Uitenhage Stormwater Master Plan</b>	
	Uitenhage Stormwater Master Plan, NMBM.	
<b>2006</b>	<b>Nelson Mandela Metropolitan University exchange programme</b>	
	Analyses and identification of nematode collected samples from the Mngazi Estuary in the Eastern Cape (former Transkei), South Africa, University of Ghent, Belgium – Nelson Mandela Metropolitan University exchange programme.	
<b>2005 - 2006</b>	<b>Berg River Reserve Determination Study</b>	<b>R 150 000</b>
	Hyperbenthos and zooplankton field assessment in Berg River estuary.	
<b>2005</b>	<b>Olifants River Reserve Determination Study, Western Cape</b>	<b>R 300 000</b>
	Specialised field ecologist - Field assessment: subtidal macrozoobenthos, hyperbenthos and zooplankton in Olifants River estuary for the Olifants River Reserve Determination study, Western Cape., Contracted sampling for CSIR Stellenbosch (Environmentek).	
<b>2004- 2005</b>	<b>DWAF - Kromme and Seekoei Estuary Reserve Determination Study</b>	<b>R 200 000</b>
	Specialised field ecologist - Kromme and Seekoei Estuary Catchment Reserve Study. Contracted sampling for Department of Water Affairs and Forestry (DWAF).	
<b>2003 - 2004</b>	<b>Berg River Baseline Monitoring Program (UCT)</b>	<b>R 350 000</b>
	Berg River Baseline Monitoring Program (UCT). Collecting subtidal macrozoobenthos.	
<b>2002 - 2006</b>	<b>University of Port Elizabeth Ecological analysis</b>	<b>R4 million</b>
	Specialised field ecologist - Field assessment: subtidal macrozoobenthic and hyperbenthic invertebrates, zooplankton, microzooplankton, meiofauna at Mngazi and Mngazana River estuaries.	
<b>2002 - 2003</b>	<b>University of Port Elizabeth Ecological analysis</b>	
	Ecological analysis of the functioning Sundays, Swartkops, Kromme, and Gamtoos estuaries using Ecopath with Ecosim, and assessment of the impact of recreational fishing on these ecosystems. MSc dissertation, University of Port Elizabeth.	

## PROJECT EXPERIENCE (continued)

- 2002 Sylt Ecosystem, Germany R 250 000**  
Assistant ecosystem modeller - Assisting in preparation and balancing of ecosystem carbon flow models of the Sylt Ecosystem, Germany.
- 2002 Field assessment: subtidal macrozoobenthos, hyperbenthos and zooplankton in Rooiels R 400 000**  
Specialised field ecologist - Field assessment: subtidal macrozoobenthos, hyperbenthos and zooplankton in Rooiels, Palmiet, Heuningnes, Breede, Klein Brak and Kaaimans River estuaries, Western Cape.
- 2002 Field Assessment - intertidal invertebrates Eastern Cape R 150 000**  
Specialised field ecologist - Field assessment: intertidal invertebrates in Kabeljous, Gamtoos, Swartkops, Sundays and Kariga River estuaries, Eastern Cape.

## PAPERS, PUBLICATIONS, PRESENTATIONS AND PROFESSIONAL SOCIETIES

### PAPERS, PUBLICATIONS

1. Vosloo, M C and Hendricks, M G J. 2017. Marine and estuarine nematodes in South Africa, Book Chapter. In *Nematology in South Africa: A view from the 21<sup>st</sup> Century*. Fourie, Spaul, Jones, Daneel, De Waele (Eds).
2. Vosloo, M.C. 2012. Network analysis of trophic linkages in two sub-tropical estuaries along the south-east coast of South Africa. PhD thesis, Nelson Mandela Metropolitan University.
3. Vosloo, M.C. 2009. Marine and estuarine meiofauna: Contribution to the National Marine Ecosystem Diagnostic Analysis. Agulhas and Somali Current Large Marine Ecosystems.
4. Vosloo, M.C. 2004. A comparative assessment of the impact of recreational and subsistence fishing on selected Eastern Cape estuarine ecosystems using the Ecopath modelling approach. MSc Dissertation, University of Port Elizabeth, Port Elizabeth.

### PROFESSIONAL SOCIETIES

1. Member of International Association for Impact Assessment – South Africa (IAIASa)
2. Registered member of South African Council for Natural Scientific Professions, (SACNASP)

### EMPLOYMENT RECORD

2013 - Present	Zitholele Consulting	Manager: Licencing and Permitting, Senior Environmental Consultant
2012	GIBB Engineering and Science	Senior Environmental Scientist
2007 – 2011	GIBB Engineering and Science	Environmental Scientist



2008 – 2011	Nelson Mandela Metropolitan University	Postgraduate (part-time) Student
2005 – 2007	Nelson Mandela Metropolitan University	Full time Postgraduate (PhD) Student
2001 - 2003	University of Port Elizabeth	Full time postgraduate (MSc) Student
2006	University of Ghent, Belgium	Exchange Ecologist



**Professional Registrations:**

- None

**Occupation:**

- Junior Environmental Assessment Practitioner

**Specialisation:**

- Project Administration
- PPP
- IWULA Application and Amendments
- ECO

**Education:**

- BSc (Environmental and Resource Studies), 2016, University of Limpopo Turfloop Campus

**Jessica Morwasehla**

**KEY EXPERIENCE**

Jessica is an Junior Environmental Assessment Practitioner. Her competencies lie Public Participation Processes for EIA, BA and NEMAQA Postponement for Compliance Timeframe projects. She also worked on projects that includes IWULA applications and Amendments, and GIS.

**PROJECT EXPERIENCE**

**2019 Doornkop Farm EIA**

EA Application and GIS.

**2019 Steelpoort mine Rehabilitation**

Environmental Control Officer, having monthly audit for the rehabilitation of the asbestos mine in Tubatse Local Municipality

**2019 Msauli Mine Rehabilitation**

Environmental Control Officer, having monthly audit for the rehabilitation of the asbestos mine in Msauli.

**2018 AEL Consol Furnace**

Compiling of PPP documents for Basic Assessment and NEMAQA postponement for Compliance timeframe

**2018 Duvha WULA Amendment.**

Uploading application form on the eWULAA and IWULA Amendment report

**2018 Kendal 30yr Ash Disposal Facility**

Engaging with the stakeholders for the wetland offset strategy and WULA Application.

**2018 Khathu EMPr Walkdown**

eWULAA applications

**2018 Farm 238JR722FR BA**

Public Participation Process for the Proposed Housing Development in Koedoespoort.

**2018 Farm 238JR722FR BA**

Public Participation Process for the Proposed Housing Development in Koedoespoort.



## PROJECT EXPERIENCE (continued)

### 2018 Kendal SPR Investigation

Public Participation Process and IWULA Amendment.

## EMPLOYMENT RECORD

2018 – Current

Zitholele Consulting

Junior Environmental Assessment Practitioner

## CURRICULUM VITAE

---

**Name** Werner Nel

**Profession** Environmental Scientist

**Name of Firm** W Nel Environmental Consulting Services

**Present Position** Environmental Consultant

**Years with Firm** June 2016 - present

**Date of Birth** 22 January 1979

**ID No.** 7901225003088

**Nationality** South African

### Education

Masters in Science, Zoology (University of Stellenbosch)  
 Bachelors in Science – Honours, Zoology (University of Port Elizabeth)  
 Bachelors in Science (University of Port Elizabeth)

### Professional Qualifications

Pending

### Memberships to Professional Societies

Zoological Society of Southern Africa

### Employment Record

June 2016 – Present	W Nel Environmental Consulting Services – Cape Town: Owner and Founder, Environmental Scientist and Consultant
April 2013 – May 2016	SiVEST SA (Pty) Ltd - Environmental Division, Cape Town: Environmental Scientist
Jan 2013 – Mar 2013	Private, Cape Town: Environmental Consultant, ISO 14001 Environmental Management
Feb 2007 – Dec 2012	De Beers Consolidated Mines – Namaqualand Mines, Kleinsee, Northern Cape: Environmental Officer (Rehabilitation Manager)
Jun 2006 – Dec 2006	AJNAP Developers, Port Elizabeth: Site Manager

### Language Proficiency

LANGUAGE	SPEAK	READ	WRITE
English	Fluent	Fluent	Fluent
Afrikaans	Fluent	Fluent	Fluent

### Key Experience

Werner Nel graduated with a BSc and BSc (Honours) from the University of Port Elizabeth and a Masters in Zoology from the University of Stellenbosch. He began working in the environmental field during his studies and fulltime as Environmental Officer in 2007 within the mining sector. In 2013 he

joined a general environmental consulting firm and left in 2016 to start of W Nel Environmental Consulting Services. He has experience in environmental management, rehabilitation and restoration of degraded landscapes, Environmental Management Systems (EMS), including ISO 14001 and in environmental compliance auditing and site monitoring especially in the arid West Coast environment. He has gained environmental experience within various industries including construction, linear projects, mining, wine industry, manufacturing and retail and provided various services within these.

His specialty within the fields of Mine Rehabilitation, Mine Closure, Environmental Management and Environmental Auditing enables him to add a holistic approach to projects.

## **Projects Experience**

### Project Management

- Transnet Coal Link Upgrade – Contractor Management, Project Management
- De Beers Namaqualand Mines - Mine Closure Plan
- De Beers Namaqualand Mines – Surface Restoration

## **AUDITS**

### South Ocean Holdings SOC

- Environmental compliance auditing for the Radiant Lightning group.

### CSM

- Environmental compliance auditing and review of various ESKOM wash bays throughout the Western Cape.

### Collotype Labels

- Assisting SABS with conducting ISO 14001 Surveillance audits.

### Distell

- Assisting SABS at various operations with ISO 14001 surveillance audits.

### DAIKIN South Africa ISO 14001

- Assisting in maintaining ISO 14001 certification following recertification audits and updating the existing EMS to be compliant with the new 2015 ISO standard.

### Patterson & Cooke EMS and ISO 14001

- Assisting in preparation and development of the required documentation for their maiden ISO 14001 certification audit.

### Unique Hydra ISO 14001

- Assisting in preparation of the required documentation for their maiden certification audit.

### De Beers Namaqualand Mines – ISO 14001 and Environmental Compliance

- Maintaining the Environmental Management System (ISO 14001) on site, successfully managing a number of recertification audits.
- Environmental Legal compliance in terms of the EMP conditions and commitments for the Buffels Marine Right.
- External audit and review of 9 waste permits located in the Buffels Marine Right and the Town of Kleinsee.

## **MINING: PERMITTING, COMPLIANCE MONITORING, REHABILITATION and MINE CLOSURE**

### Petra Diamonds – Closure planning

- Providing guidance and assistance with the development of the Mine Closure Strategy of the Helam mine
- Mine Closure Planning and Risk Assessment of Koffiefontein Diamond Mine
- Mine Closure Planning and Risk Assessment of Cullinan Diamond Mine

#### JLJ Logistics – Environmental Audit

- Environmental Legal compliance in terms of the EMPr conditions and commitments for a sand mining right.

#### Moodie Brothers – Environmental Audit

- Environmental Legal compliance in terms of the EMPr conditions and commitments for a sand mining permit.

#### Van Schalkwyk Vervoer cc – Application for new mining permits.

- Application for new sand and gravel mining permits in the Southern Cape region.

#### Thunderflex (Pty) Ltd – Closure Liability Costing

- Mine Closure Liability Cost Calculations and Re-evaluation existing closure costs.

#### Kayad Knight Peisold and SANRAL

- Closure Applications and Rehabilitation planning for Borrow pits used during road construction.

#### De Beers Namaqualand Mines – Mine Closure Planning and Environmental Compliance

- Bi-annual Performance Assessment and Environmental Audit Report for the Buffels Marine Mining Right.
- Formulation and implementation of the Namaqualand Mines Mine Closure Plan.

#### De Beers Kimberley Mine – Mine Closure Planning

- Providing guidance in the preparation of the Kimberly Mines Mine Closure Plan and Mine Closure Costing.

### **ENVIRONMENTAL CONTROL OFFICER**

- Environmental Officer at De Beers Namaqualand Mines, Northern Cape, South Africa
- Environmental support services (DEO) to RAUBEX during the construction phase of the N7 Road upgrade between Clanwilliam and Trawal, Western Cape, South Africa.
- Environmental support services (ECO) to Knight Piesold during the construction phase of the N7 Road upgrade between Trawal and Vanrhynsdorp, Western Cape, South Africa.
- Environmental support services (ECO) to AECOM during the construction phase for the re-alignment of the N7 between Kransvleikloof and Clanwilliam, Western Cape, South Africa.
- Environmental support services (ECO) to the Department of Water and Sanitation during the site establishment phase for the strengthening and raising of the Clanwilliam Dam, Western Cape, South Africa.
- Environmental support services (ECO) to Bergstan South Africa during the construction phase of Sludge Dewatering Structures at various Waste Water Treatment Plants for the City of Cape Town.
- Environmental support services (ECO) to Aurecon during the site establishment for the upgrade to the Olifants River Bridge, Klawer, Western Cape, South Africa
- Environmental support services (ECO) to Hatch South Africa, during the upgrade of the municipal water infrastructure in Porterville, Western Cape, South Africa
- Environmental support services (ECO) to CPV 1 during the construction of the Touwsrivier Solar Plant, Touws River, Western Cape, South Africa.
- Environmental support services (ECO) to Eskom during emergency upgrade to the Palmietvlei Headrace Power Line near Palmiet Substation in Grabouw, Western Cape, South Africa.
- Environmental support services (ECO) to Transnet Ports Authority during the refurbishment of the Spur breakwater at the V&A Waterfront, Cape Town, South Africa.
- Environmental Control Officer (ECO), as an associate of EcoSense, to SHAR Civils for the Maroela South Subsidised Human Settlement Development, Brackenfell.
- Environmental Control Officer (ECO), as an associate of EcoSense, to SHAR Civils for the installation of services and infrastructure upgrades at the Kalkfontein Informal Settlement, Kuilsrivier.

### **TRAINING**

#### Training of Mining Employees:

- Training in terms of requirements of site-specific Environmental Management Plans, including De Beers Namaqualand Mines' ISO 14001 EMS requirements to on-site contractors and visitors.
- Formulation development of the on-site environmental visitors' induction.

#### Training of Construction Employees:

- Induction training at various construction sites in terms of site-specific Environmental Management Plans and Environmental Authorizations.

### **ENVIRONMENTAL MANAGEMENT SYSTEMS**

- Paterson & Cooke ISO 14001 EMS Development
- DAIKIN South Africa ISO 14001 EMS
- Unique Hydra ISO 14001 EMS
- De Beers Namaqualand Mines ISO 14001 EMS
- Peter Falke Wines EMS & IPW
- SA Corporate Environmental Policy

### **COASTAL ZONE MANAGEMENT**

- Representative of Northern Cape Provincial Coastal Committee (2009-2012)

### **ENVIRONMENTAL IMPACT ASSESSMENTS**

- Proposed development of an Asbestos Waste Disposal Facility on the Farm Tweepad, Kleinzee, Northern Cape
- Proposed development of Nzalo (Mqwabe) 400kV Substation and associated 88kV and 400kV turn in lines, Kwazulu-Natal Province, South Africa
- Proposed ESKOM De Hoek-Mountain 66kV Power line and Substation installation, De Hoek, West Coast District Municipality, Western Cape, South Africa
- Proposed ESKOM Longdown 66kV Substation and Associated Vyeboom 66kV Turn-In Power Line, Theewaterskloof, Western Cape
- Proposed development of a new Winery and Storage facility on the farm Groenvlei Estate, Stellenbosch, Western Cape

<b>Residential/Business address:</b> 34 Farm Street, Bryanston, 2191 Gauteng Province, SA	<b>Postal address:</b> PO Box 369, Wendywood, 2144 Gauteng Province, SA	<b>Contact details:</b> m:: + 27 (0)82 293 5752 e: mathew@enviross.co.za
--	--	--

# Dr Mathew James Ross

---

**I.D. no.:** 780724 5132 080  
**Date of birth:** 24 July 1978  
**Nationality:** South African  
**Passport no.:** M00085961  
**Business owner:** Enviross Environmental Impact Studies CC (*Trading as Enviross CC*)  
(CK/2007/051532/23; VAT no 481/02/3499/9)  
Position: Founder/Managing member, Senior Scientist  
BBEEE Rating: Exempt micro-business.  
**Driver's licence:** Code 08 (vehicle owner) No endorsements  
**Marital status:** Married  
**Home owner:** Yes  
**Dependants:** Yes  
**Criminal record:** None  
**Highest qualifications:** PhD – Aquatic Health (UJ).  
Design and development of fishways in SA;  
SASS5 accredited practitioner;  
SACNASP Professional Natural Scientist (Reg no: 400061/09 - Ecological Sciences),

## Tertiary Education

### 1998 – 2000 Rand Afrikaans University

- BSc (Biological Sciences)

Subjects: Zoology & Botany (majors)

### 2001 Rand Afrikaans University

- BSc (Hons) – Zoology: Aquatic Health

### 2002 – 2004 Rand Afrikaans University

- MSc – Aquatic Health (Dissertation)

**(Assessment of international practices on the use of fish in toxicity testing and application to South African conditions).**

### 2005 – 2016 University of Johannesburg

PhD – Aquatic Health

**(Determining the biological requirements of important migratory fish species to aid in the design of fishways in South Africa).**

- Planning and construction of fish housing system capable of simulating natural conditions and environmental cues so as to stimulate migratory behaviour in fish;
- Monitoring existing fishways throughout the country to determine functionality of the fishways;
- Determining the biological requirements of selected important migratory fish species throughout South Africa;
- Undertaking migratory studies of fish throughout South Africa;
- Compile a guidelines document for the planning, design and operation of fishways specifically for South African conditions.

## Further qualifications and courses

- Introduction to quantitative research using sample surveys (2002);
- Attended workshop on algal toxicity testing – Environmentek, CSIR (2003);
- Grass identification course – Witwatersrand Botanical Gardens (2003);
- Venomous snake handling and first aid (2003);
- First Aid – Level 3 – Netcare 911 (2004);
- Advanced 4x4 driving (2001, 2003 & 2006);

- Soil Classification course with emphasis on wetland delineations (TerraSoil Science) April 2009;
- Qualified as an Advanced Scuba Diver;
- Advanced grass identification course (Africa Land Use Training) Feb 2010.

#### **Publications, Presentations and Awards.**

- Awarded the best BSc (Hons) presentation in the post graduate colloquium in the Zoology Department, RAU.
- Published research article entitled: 'Exploring the ichthyocidal properties of *Euphorbia ingens* – Euphorbiaceae. *African Journal of Aquatic Science*, 29 (2): 2004.
- Awarded the Juan Heyns certificate for best PhD presentation in the post graduate colloquium in the Zoology Department, RAU '**Determining the biological requirements of important migratory fish species to aid in the planning and construction of fishways in South Africa**' – June 2005.
- Presented research project entitled: '**Preliminary study to validate the use of zebrafish (*Danio rerio* – Cyprinidae) as a suitable test species for standardized fish acute toxicity testing**' at SASAqS conference 2003 – Cape Town.
- Presented a poster study entitled: '**An investigation into finding suitable alternative fish species for use in the standard fish acute toxicity test**' – July 2005 – Rhodes University.
- Awarded best poster presentation by SASAqS examination committee – July 2005, Rhodes University.
- Presented a poster study entitled: '**An investigation into finding suitable alternative fish species for use in the standard fish acute toxicity test**' – Environmentek (CSIR) Aquatox forum, Rand Water Head Offices, Glenvista (2005).
- Presented a paper entitled: '**Preliminary results from laboratory tests of a vertical slot prototype fishway channel design**' – SASAqS conference, Maputo, June 2006.
- Presented paper entitled: '**Assessing biological criteria to facilitate fishway designs for South African rivers**. Tenth annual *RiverSymposium* (Rivers Festival) on environmental flows, Brisbane, Australia, September, 2007.
- Written fishway and fish ecology-related articles that have appeared in *Engineering News*, *Die Beeld*, *The Star* and *Westrand Review*.
- Published research report (co-author): *Guidelines for the planning, design and operation of fishway in South Africa WRC Report No TT/287/07*
- Presented radio interviews for RSG on fishways and fish-related topics.
- Presented a television interview for *Careers (SABC2)*.
- Published research article (co-author) entitled: 'Sexual dimorphism of four owl species in South Africa' *Ostrich*, 79 (1): 2008. Ansara-Ross, T.M., Wepener, V., Verdoorn, G.H. & Ross, M.J.
- Published research article (co-author) entitled: 'Probabilistic risk assessment of the environmental impacts of pesticides in the Crocodile (west) Marico Catchment, Northwest Province' *Water SA*, 34 (5):2008. Ansara-Ross, T.M., Wepener, V., van den Brink, P.J. and Ross, M.J.
- Published research article (co-author) entitled: 'Application of a direct toxicity assessment approach to assess the hazard of potential pesticide exposure at selected sites on the Crocodile and Magalies rivers, South Africa'. *African Journal of Aquatic Science*, 34 (3): 2009. Ansara-Ross, T.M., Wepener, V., van den Brink, P.J. and Ross, M.J.
- Published research article (co-author) entitled: 'A review of pesticides in South African freshwaters'. *African Journal of Aquatic Science: 2011*. Ansara-Ross, T.M., Wepener, V., van den Brink, P.J. and Ross, M.J.
- Published research article (co-author) entitled: 'The use of feathers in monitoring bioaccumulation of metals and metalloids in the South African endangered African grass-owl (*Tyto capensis*). *Ecotoxicology*. Vol 22 (6) 2013. T. M. Ansara-Ross, M.J. Ross & V. Wepener;
- Keynote speaker at 2016 World Fish Migration Day (WRC, Pretoria);
- Keynote speaker at 2018 Africa Swimways Project Workshop, University of Mpumalanga;
- Co-author of a presentation delivered at the World Fish Migration conference in Cambodia (Nov 2018). Keynote speaker at the From Source to Sea: Fishways Africa workshop/conference entitled "Review of fishways in Africa: Design & Implementation", University of Mpumalanga, February 2019;
- Published research article (co-author) entitled: 'River connectivity and fish migration considerations in the management of multiple stressors in South Africa'. *Marine & Freshwater Research (accepted for publication 1 July 2019)*.

#### **Memberships, affiliations & further interests.**

- South African Council for Natural Scientific Professionals (SACNASP) Reg no: 400061/09 in Ecological Sciences;
- South African Society for Aquatic Scientists (SASAqS);
- Aquatox Forum (Environmentek, CSIR);
- Gauteng Wetland Forum;
- African Grass Owl Action Group (EWT) – Specialist consultant;
- Spider Club of South Africa;

- Herpetological Society of South Africa;
- Scubaversity club member (PADI advanced);
- 4x4 trails; photography, videography and underwater photography.
- Federation of Boxer Clubs of Southern Africa; Panel of Trainers (Chairman) & Meridian Rottweiler League. Boxer breed, trials and disposition judge (for breeding, training, working trials and showing of dogs). Accredited international working trials assailant and trainer.

#### **Scope of recent prominent consultancy projects.**

##### **Biomonitoring and Aquatic/Wetland Specialist Assessments:**

- Undertaking fish migration barrier and fish assessments for fishway specialist studies.
- Contracted by the Water Research Commission to determine the biological requirements for new fishway designs and implementation.
- Maintenance and culturing of critically endangered fish from the Cedarberg area (Water Research Commission).
- Design of indigenous fish display aquarium as well as design and building of filtration system – Walter Sisulu National Botanical Gardens, SANBI.
- Indigenous fish speciality surveys, collection and relocation for various stocking and rehabilitation programmes.
- Design and construction of a self-sustaining zebrafish culturing facility; training of staff in the successful maintenance and culturing of zebrafish for routine laboratory purposes – CSIR, Environmentek.
- Design and construction of a self-sustaining zebrafish culturing facility; training of staff in the successful maintenance and culturing of zebrafish for routine laboratory purposes – Hydrobiology, Rand Water, Vereeniging.
- Currently undertaking an aquatic ecological assessment of the Crocodile (west) Marico River System as a research assistant (University of Johannesburg).
- Proficient in the following biomonitoring indices: FAIL, FRAI, SASS5, MIRAI, IHAS, RVI, VEGRAI and water quality determinations.
- Proficient in wetland delineation and wetland verification studies.
- Biomonitoring and water quality analyses for rehabilitation procedures at OR Tambo International Airport, ACSA.
- Biomonitoring for all watercourse crossings pertaining to Gautrain Rapid Rail Link development.
- Co-author for the status quo of wetlands for the whole of the Dinokeng Hub area.
- Wetland characterisation modelling for the Klipspruit /Klip River catchment.
- Co-author of the current “Jo’burg State of Environment Report” dealing with the biodiversity and surface waters resource aspects in both the status quo phase as well as determining the present state.
- Wetland specialist surveys for the Orlando Ekhaya and Soweto Music Centre Developments.
- Wetland and terrestrial surveys for the proposed Dhlamini Kliptown, Mofolo (south) & Klip (north) and Orlando (west) & Dube developments, Soweto;
- Wetland and riparian rehabilitation plan development for Gautrain (Bombela CJV);
- Wetland and aquatic specialist surveys for Mokolo Crocodile West Water Augmentation Project (MCWAP);
- Wetland rehabilitation plan development for Orlando Ekhaya and Heroes Bridge developments, Soweto;
- Wetland surveys for proposed ESKOM Johannesburg Strengthening Scheme;
- Aquatic impact assessments for proposed Solar Power Plan development, Orange River, Upington;
- Aquatic impact assessment for proposed upgrading of Bray Border Post (SA/Botswana) for the Molopo River;
- Wetland surveys for Neotel data cable installation (Jhb to CT);
- Wetland surveys for ESKOM powerlines, Delareyville;
- Aquatic impact assessments for various hydropower schemes on the Ash River, Bethlehem;
- Fishway development for DWS gauging weirs, dams and various bridges throughout SA;
- Aquatic impact surveys for the proposed Mooifontein Uranium Mine, Edenburg;
- Wetland delineation and impact surveys for various Rand Water pipelines throughout Gauteng;
- Wetland delineation and impact surveys for various Bloem Water pipelines throughout Free State Province;
- Fishway design for Lower Thukela River;
- Aquatic and fish ecological survey for the Ncwabeni Off-Channel Storage Scheme;
- Author of the surface water resource section of the UmKhanyakude and uThukela District Municipality Environmental Management Framework;
- Fishway evaluations and routine fishway and aquatic biomonitoring for the Kakamas Hydro-electrical Scheme (KHEP) at Neusberg Weir, Orange River;
- Development strategies for the provision of a fishway at the Vaal River Barrage;
- Aquatic ecological and impact surveys and fishway development for hydropower schemes on the Orange River at Riemvasmaak (Augrabies Falls);

- Full terrestrial and aquatic ecological and fishway (fish migrations impacts and fishway design) of the proposed Sidala Energy Solutions Rooikat and Meerkat Hydropower Schemes, Orange River;
- Aquatic & wetland ecological and impact surveys for the uMkhomazi Water Project, KZN, including fish migrations and fishway evaluations;
- Wetland and aquatic ecological and impact surveys for the ESKOM Kuruman Strengthening Scheme, NC;
- Aquatic & wetland ecological and impact surveys for the construction of Foxwood Dam, Adelaide, EC, including fish migrations and fishway evaluations;
- Fishway assessments for Sasol, Secunda;
- Fishway assessments and design for Doornkloof Weir, Sesmylspruit, Centurion;
- Full ecological surveys (terrestrial biodiversity, aquatics and wetlands) for the ESKOM Intabazwe powerline walk-down component;
- Full ecological surveys for the proposed Tina Falls Hydropower Scheme (aquatics, fishways, terrestrial fauna and flora and avifauna), Mthatha, EC.

#### **Terrestrial Biodiversity Specialist Assessments:**

- Biodiversity, wetlands, aquatic and avifaunal impact assessments for pipeline and powerline developments (*Petronet (New Multi Product Pipeline), Rand Water, and ESKOM – transmission and distribution overhead lines*);
- Biodiversity walk-down survey for the ESKOM Zeus-Mercury powerline surveys and EMP development (eastern Gauteng);
- Ecological surveys and development of an Environmental Management Plan for University of Johannesburg (Soweto Campus and UJ Island, Vaal Dam);
- Full ecological assessment (aquatic, wetland, fauna & flora, avifaunal and vegetation) surveys for CSIR Satellite Application Centre, Hartbeeshoek;
- Full ecological assessment (aquatic, wetland, fauna & flora, avifaunal and vegetation) surveys for proposed KwaCeza Mountain Colliery, Swart Umfolozi, KZN;
- Full ecological survey (Avifaunal impacts, general fauna & flora, wetlands & aquatics) for the proposed ESKOM Highveld Northwest-Lowveld Strengthening Scheme), LP;
- Full ecological survey (Avifaunal impacts, general fauna & flora, wetlands & aquatics) for the proposed ESKOM Neptune-Poseidon powerline, Eastern Cape;
- Ridge rehabilitation for the Rand Water BG3 pipeline;
- Full ecological survey for the proposed SolAfrica (Bokpoort) water pipeline, Upington, including walk-down;
- Full ecological survey for the development of 132 kV powerlines for the Redstone Solar Power Plant, Lime Acres;
- Full ecological survey (including avifaunal impacts) for the development of 132 kV powerlines for the ESKOM Mookodi Integration Phase 2;
- Full ecological survey (including avifaunal impacts) for the development of 88 kV powerlines for the ESKOM Frankfort Strengthening Project;
- African Grass-owl specialist surveys at various localities throughout Gauteng, Northwest Province and Mpumalanga;
- Full ecological survey (Avifaunal impacts, general fauna & flora, surface water ecosystems) for the proposed ESKOM Melkspruit-Rouxville 132 kV powerline, Free State & Eastern Cape;
- Full ecological survey (Terrestrial fauna & flora, wetlands & aquatics) for the proposed DWS Bultfontein bulk water pipeline, FS;
- Full ecological surveys (surface water ecosystems, terrestrial fauna & flora and avifaunal impact surveys for the ESKOM Klipkop-Lehating 132 kV powerline, Black Rock, NC.
- Avifaunal impact surveys for the ESKOM Mahikeng-Mookodi 400 kV powerline, NWP.

#### **International experience:**

- Development of an EMP for mining rehabilitation aspects, Mutanda Mine, DRC;
- Riparian vegetation analysis and mapping for the development of an EMP for a game farm development – Limpopo-Lipadi, Botswana;
- Aquatic and wetland impact surveys for Bokai Platinum (Todal Mining), Zimbabwe;
- Surface water quality and ecological impact evaluation for the proposed Mkuju River Platinum Project, Selous Game Reserve, Tanzania;
- Aquatic biomonitoring and ecological surveys for the Perkoa Zinc Project, Nantou Mining, Burkina Faso;
- Surface water quality, aquatic biomonitoring and ecological surveys for the Papillon Resources: Fekola (Medinandi) Gold Mine, Mali;
- Aquatic, water quality and wetland impact assessments for the Esaase Gold Project, Ghana;
- Aquatic ecological and impact assessment for the Orange Falls Hydroelectric Power Scheme, Orange River, Namibia;

- Ecological flow and migration surveys for augmentation and upgrading of the Lunsemfwa Hydro Power Schemes, Zambia;
- Surface water quality, aquatic and wetland ecological and impact surveys for the Kalana Gold Mine, Mali;
- Peer-review aquatic ecological and impact analysis senior consultant for the proposed Ngonye Falls Hydro Power Scheme, Zambezi River, Zambia;
- Fish migrations and fishway design for the proposed Ngonye Falls Hydro Power Scheme, Zambia;
- Design of a fishway facility for the Nyamagasani Hydropower Scheme, Uganda;
- Fish migrations and fishway design for the Kikagati Hydropower Scheme, Kagera River, Uganda;
- Fish migrations and fishway designs for the Achwa 1 and 2 Hydropower Schemes, Achwa River, Uganda.

**Ecological modelling:**

- Proficient in GIS modelling and mapping (ArcGIS);
- Proficient in design and modelling in AutoCAD for fishway (and other ecological infrastructure) designs;
- Proficient in hydraulic analyses of fishways and flow gauging structures.