water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

WATER RESOURCE INFORMATION MANAGEMENT
LIMPOPO PROVINCE

GH4336

STATUS ON MONITORING & SURFACE WATER LEVEL TRENDS
Up to 30 September 2019

D Viljoen
November 2019

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1. EXECUTIVE SUMMARY

The information presented in this report is based on the status of all the major dams in the province up to end of September 2019.
Currently 89% of the dams in Limpopo Province have less water than the corresponding period last year and the following 8 dams are below 40%: Houtrivier, Nsami, Tours, Doorndraai, Tzaneen, Modjadji, Glen Alpine and Middle Letaba Dams. The average storage capacity for the province is 52.61% comparing to 66.61% the previous year.

The storage volume of the dams in the Limpopo WMA is 335.17 million cubic meters (65.40%) and is 64.98 million cubic meters less than the corresponding period last year (78.08%).

The storage volume of the dams in the Olifants River WMA is 467.07 million cubic meters (46.14%) and is 148.47 million cubic meters less than the corresponding period last year (60.80%)

The overall storage volume of the dams in the Limpopo Province is 802.24 million cubic meters (52.61%) and is 213.44 million cubic meters less than the corresponding period last year (66.61%).

The challenge in both WMAs is that there are smaller dams, which supply water to communities that still need to be monitored. Resources need to be put in place before monitoring of these dams can be considered. Water level monitoring infrastructure at these dams are non existing or totally dilapidated, very little design, as built and survey information exists. This need to be addressed before any form of water level monitoring can be considered. The Thapane and Sheshego Dams are examples of this.

Available water resources at the following dams will have to be managed with great care and restrictions will have to be strictly adhered to as part of precaution measures**.**

DAM	CURRENT CAPACITY (MCM)	CURRENT CAPACITY (%)
Houtrivier Dam	2.56	38.70
Nsami Dam	6.75	30.90
Tours Dam	1.81	29.80
Doorndraai Dam	4.59	10.50
Tzaneen Dam	12.53	8.00
Modjadji Dam	0.55	7.70
Glen Alpine Dam	0.75	4.00
Middel-Letaba Dam	6.48	3.80

The SAWS indicated the following:

The El Niño-Southern Oscillation (ENSO) is currently in a neutral state and the forecast indicates that it will most likely remain in a neutral state for the coming seasons. ENSO forecasts are currently extremely uncertain, with a wide variety of outcomes, including a weak El Niño, predicted by different forecasting centres. Usually when this is the case, seasonal forecasts for the summer rainfall areas tend to be very uncertain as well.
The late spring (Oct-Nov-Dec) period indicates confident forecasts that below-normal rainfall is more likely over the central to south-eastern parts of the country. Early-summer (Nov-Dec-Jan), however, indications are that above-normal rainfall is more likely for the central and eastern parts, which are predicted to continue into mid-summer (Dec-Jan-Feb). The threshold forecasts mainly indicate a higher number of rainfall days during late-spring through to mid-summer. It is important to note the heightened likelihood from international forecasts (mainly from global dynamical models) that seem

to be very confident about typical El Niño rainfall conditions over Southern Africa during the entire summer period.

2. MONITORING NETWORK

The hydrological monitoring network for the Limpopo Province consists of the following:

81 river flow gauging stations (excluding canals and pipelines)
22 dam gauging stations
16 evaporation stations

3. OVERVIEW

For information purposes a graph depicting the surface water storage trend for Limpopo Province (October 1978 to September 2019), is attached, page 11.

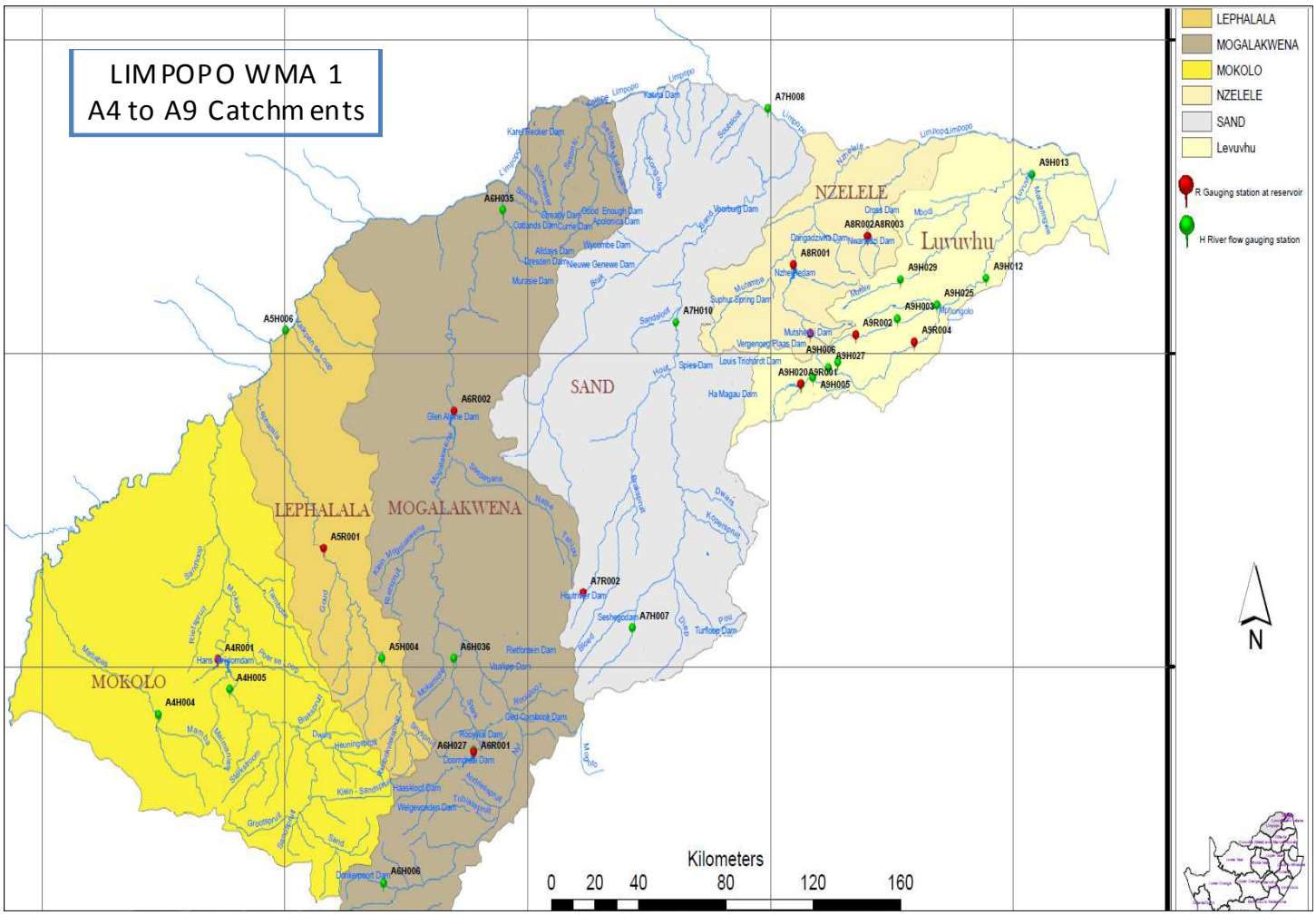
For information purposes a table indicating the comparison of water storage percentage for the different provinces is attached on page 12.

The purpose for attaching graphs of individual dams is to give a broader picture of water storage and status in the sub drainage catchments.

Attached are also tables indicating the capacity in millions of cubic meters and percentages for Dams falling in the Limpopo and Olifants WMA's, pages 9, 10

4. LIMPOPO WATER MANAGEMENT AREA

The WMA consists of secondary drainage areas A1 to A9, of which A4 to A9 were addressed in this report.



4.1 A4 Drainage Area (Matlabas, Mokolo Rivers)

A graph of the Mokolo Dam (A4R001) is attached as no other dam exists in the A4 hydrological monitoring network.

4.2 A5 Drainage Area (Lephalala River)

Two small dams exists in the A5 hydrological network namely the Susandale Dam (A5R001) and the Vischgat Dam (A5R002). Owing to their relatively small storage volumes of approximately 0.6 million cubic meters in total, these dams have not been included in this report.

4.3 A6 Drainage Area (Nile, Sterk, Mogalakwena and Dorps Rivers)

Graphs of the Doorndraai Dam (A6R001) and Glen Alpine Dam (A6R002) are attached as no other dams exist in the A6 hydrological monitoring network.

It must be noted that the full capacity storage of Glen Alpine Dam is only 18.889 million cubic and therefore the dam fills and empties much faster than Doorndraai Dam! The graph of Glen Alpine clearly indicates this!

4.4 A7 Drainage Area (Sand, Blood, Diep, Hout, Dwars and Brak Rivers)

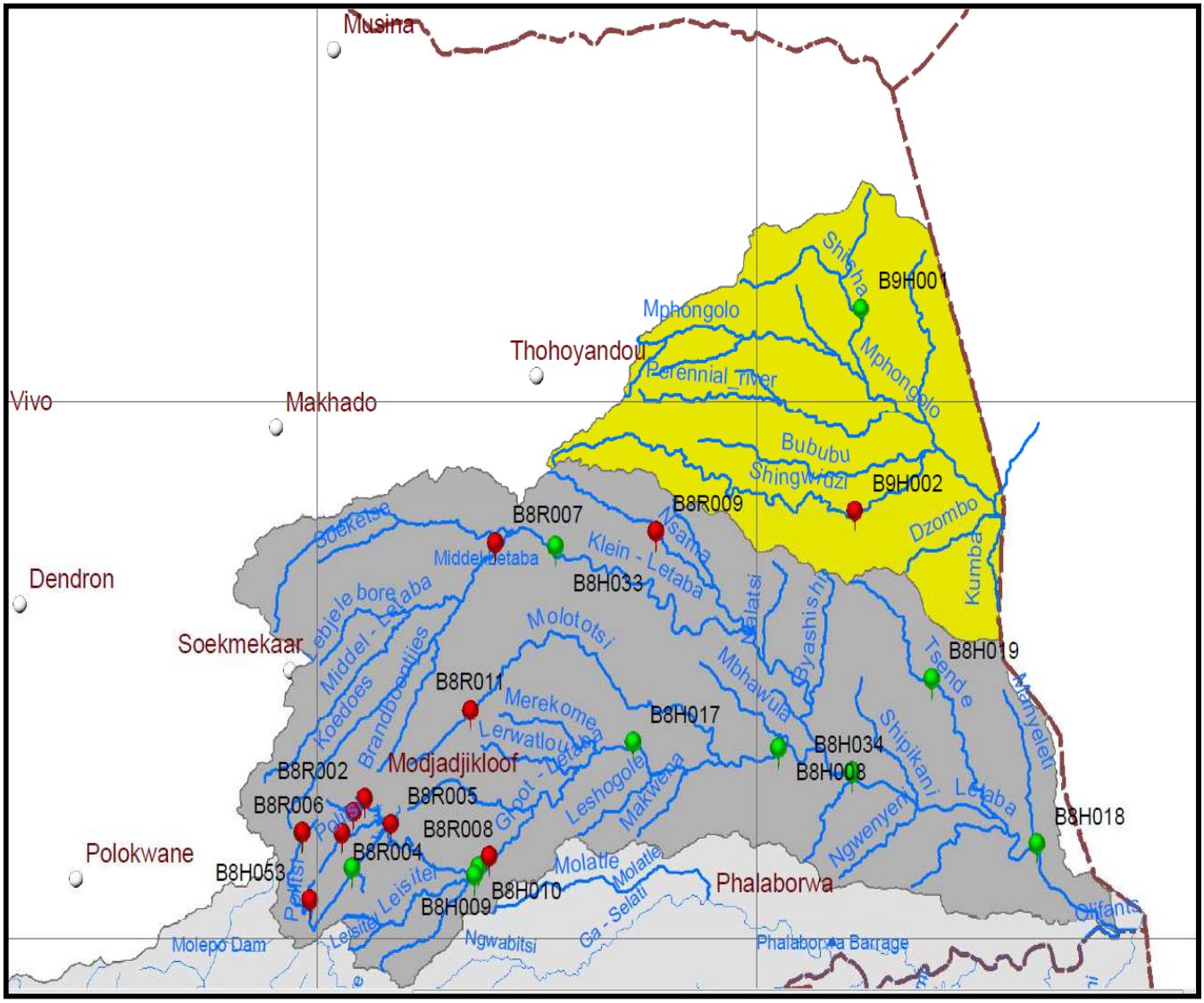
The Houtrivier Dam is the only Dam being monitored in this drainage region.

4.5 A8 Drainage Area (Nwanedzi and Nzhelele Rivers)
Graphs for the Nzhelele Dam (A8R001), Luphephe (A8R002), Nwanedzi (A8R003) and Mutshedzi (A8R004) Dams are attached.

4.6 A9 Drainage Area (Mutale, Luvuvhu Rivers)
Graphs for the Albasini Dam (A9R001), Vondo Dam (A9R002) and Nandoni (A9R004) Dams are attached.

5. OLIFANTS WATER MANAGEMENT AREA

The WMA consists of secondary drainage areas B1 to B9, of which monitoring sites in the B3 to B5 and B7 to B9 were addressed.



5.1 B3 Drainage Area (Olifants, Elands, Bloed and Selons Rivers)

For information as well as operational matters a graph of Rust de Winter Dam (B3R001) has been included.

5.2 B4 Drainage Area (Steelpoort River)

For information as well as operational matters a graph of De Hoop Dam (B4R007) has been included.

5.3 B5 Drainage Area (Olifants River)

For information as well as operational matters the graph of Flag Boshielo Dam (B5R002) has been included in this report.

5.4 B7 Drainage Area (Klaserie and Olifants Rivers)

For information as well as operational matters the graphs of Klaserie Dam (B7R001) and Tours Dam (B7R003) have been included in this report.

5.5 B8 Drainage Area (Great, Middle and Klein Letaba Rivers)

Graphs for the Ebenezer Dam (B8R001), Magoebaskloof Dam (B8R003), Tzaneen Dam (B8R005), Middle-Letaba Dam (B8R007), Nsami Dam (B8R009) and Modjadji Dam (B8R011) are attached.

5.6 B9 Drainage Area (Shingwedzi, Phugwane and Mphongolo Rivers)

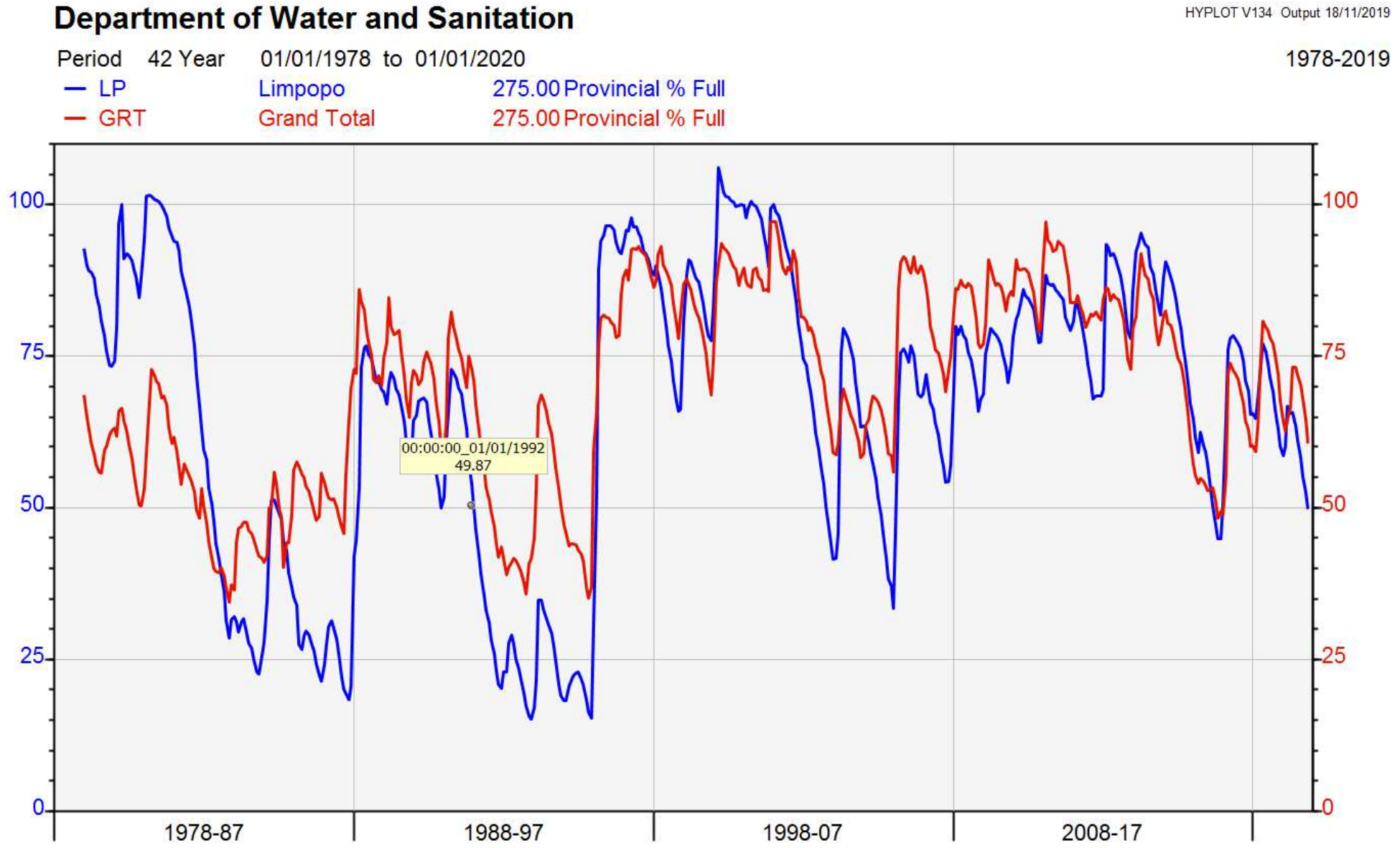
Only a limited part of this drainage area falls outside the Kruger National Park!
There are no existing dam monitoring stations in the hydrological network for this drainage area!

Levels of dams in Limpopo falling in the Limpopo WMA 1 (End of September 2019)

Full Supply Capacity Average for Limpopo WMA (%)	Dam	Full Supply Capacity in Millions m^3	Current Capacity in Millions m^3	Capacity in % Previous Year	Capacity in % Previous Week	Current Capacity in %
65.40	Mokolo Dam	145.77	92.13	76.70	63.60	63.20
	Doorndraai Dam	43.76	4.59	31.30	10.90	10.50
	Glen Alpine Dam	18.89	0.75	9.50	4.20	4.00
	Houtrivier Dam	6.63	2.56	37.80	39.60	38.70
	Nzhelele Dam	51.23	29.66	68.30	59.10	57.90
	Luphephe Dam	13.98	5.87	76.30	43.50	42.00
	Nwanedzi Dam	5.14	2.92	74.00	58.20	56.80
	Mutshedzi Dam	2.34	1.94	91.70	86.00	83.20
	Albasini Dam	28.20	18.67	81.00	66.90	66.20
	Vondo Dam	30.45	25.76	92.90	85.60	84.60
	Nandoni Dam	166.11	150.31	100.90	91.20	90.50

Levels of dams in Limpopo falling in Olifants WMA 2 (End of September 2019)

Full Supply Capacity Average for Olifants WMA (%)	Dam	Full Supply Capacity in Millions m^3	Current Capacity in Millions m^3	Capacity in % Previous Year	Capacity in % Previous Week	Current Capacity in %
46.14	Rust De Winter Dam	28.19	12.72	96.10	46.20	45.10
	Tonteldoos Dam	0.19	0.14	99.80	75.20	73.90
	Vlugkraal Dam	0.44	0.37	85.40	85.70	84.20
	De Hoop Dam	348.70	278.71	85.00	80.10	79.90
	Flag Boshielo Dam	185.13	103.22	85.50	56.80	55.80
	Klaserie Dam	5.60	4.27	9.60	78.10	76.20
	Tours Dam	6.08	1.81	33.80	30.70	29.80
	Ebenezer Dam	69.14	29.98	77.30	45.20	43.40
	Hans Merensky Dam	1.23	0.60	90.60	53.70	48.90
	Magoebaskloof Dam	4.84	4.72	99.00	98.30	97.60
	Vergelegen Dam	0.25	0.18	86.20	71.50	70.10
	Tzaneen Dam	156.53	12.53	26.90	8.80	8.00
	Dap Naude Dam	1.94	1.66	93.70	87.40	85.80
	Middel-Letaba Dam	171.93	6.48	9.80	4.00	3.80
	Thabina Dam	3.09	2.38	63.36	79.01	77.17
	Nsami Dam	21.87	6.75	33.80	32.20	30.90
	Modjadji Dam	7.20	0.55	12.80	8.20	7.70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HYPLOT V134 Output 18/11/2019
Period 42 Year 01/01/1978 to 01/01/2020
1978-2019
LP Limpopo 275.00 Provincial % Full
GRT Grand Total 275.00 Provincial % Full
100
75
50
25
0
00:00:00_01/01/1992
49.87
1978-87
1988-97
1998-07
2008-17

Summary Provinces	Full Supply Capacity 10^6M^3	Water in Storage 10^6M^3	Last Year %Full	Last Week %Full	This Week 30/09/2019 %Full
EC Eastern Cape	1809.6	958.0	65.8	53.3	52.9
FS Free State	15653.0	12059.8	88.7	78.1	77.0
G Gauteng	128.1	112.5	97.5	88.8	87.8
KN Kwazulu-Natal	4784.0	2672.8	60.5	56.7	55.9
L Lesotho	2362.6	486.3	40.2	21.3	20.6
LP Limpopo	1522.3	800.1	66.8	53.2	52.6
M Mpumalanga	2538.6	1570.3	73.4	62.7	61.9
NC Northern Cape	147.3	117.6	87.3	79.6	79.8
NW North West	867.3	489.6	61.1	57.8	56.5
S Swaziland	333.8	248.5	83.8	76.5	74.5
WCo Western Cape - Other rainfall	268.9	53.0	21.5	20.0	19.7
WCw Western Cape - Winter rainfall	1596.8	1184.4	73.1	74.5	74.2
WC Western Cape - Total	1865.7	1237.4	65.7	66.6	66.3
GRAND TOTAL	32012.1	20752.8	75.4	65.7	64.8

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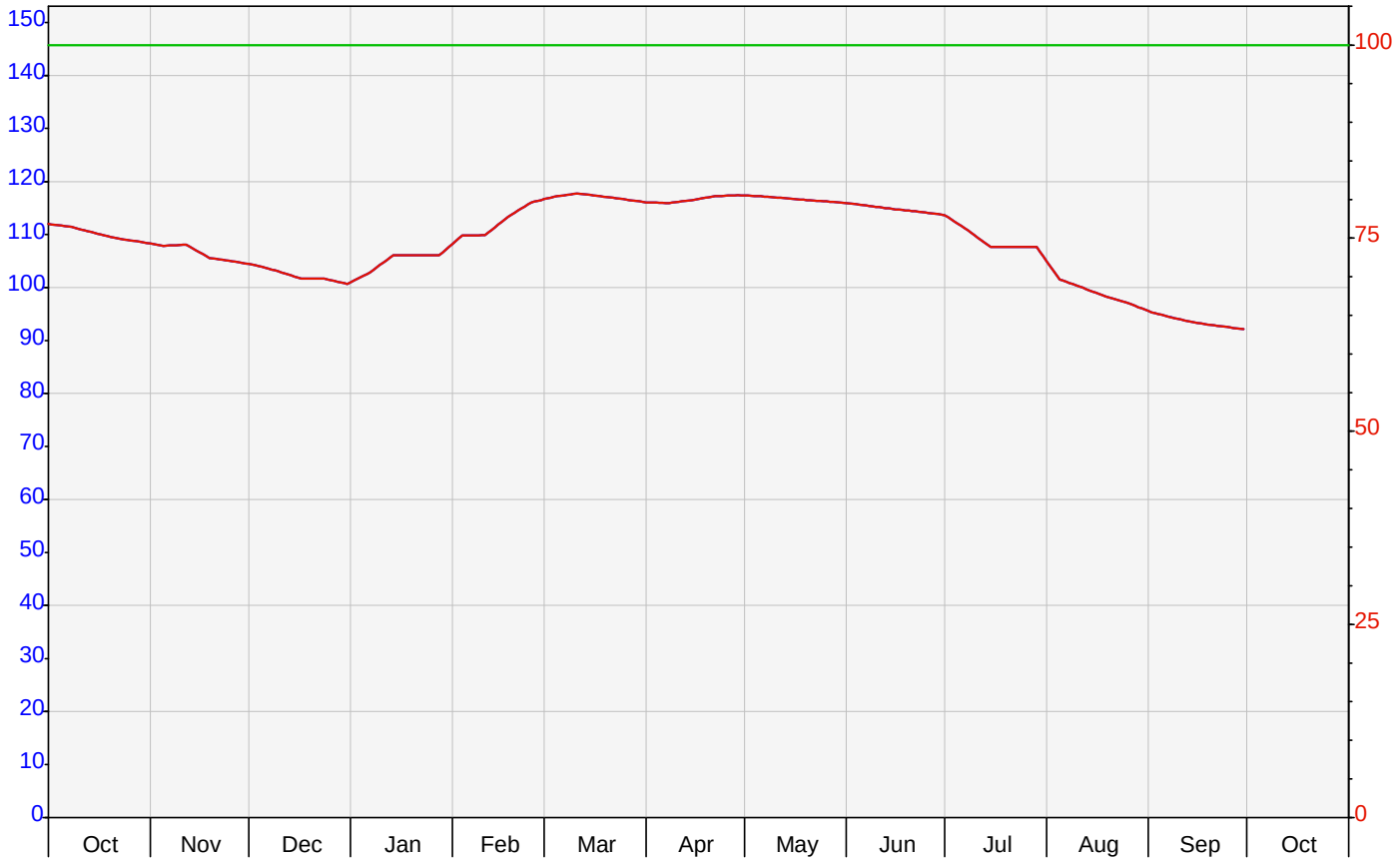
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— A4R001	Mokolo Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— A4R001	Mokolo Dam	210.00% Full (nett)	Weekly Reading	WB
— A4R001	Mokolo Dam	210.00% Full (nett)		TT



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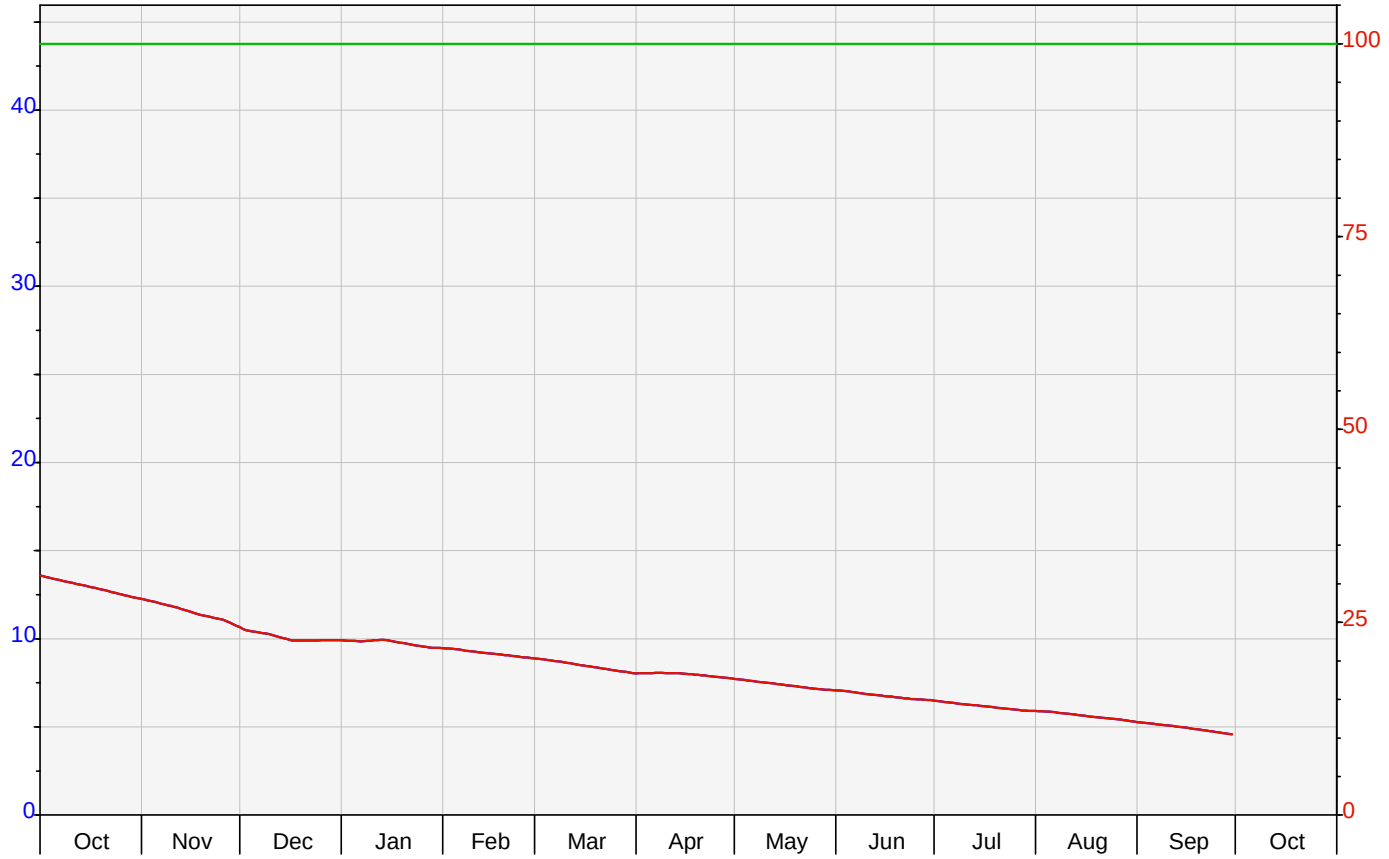
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— A6R001	Doorndraai Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— A6R001	Doorndraai Dam	210.00% Full (nett)	Weekly Reading	WB
— A6R001	Doorndraai Dam	210.00% Full (nett)		TT



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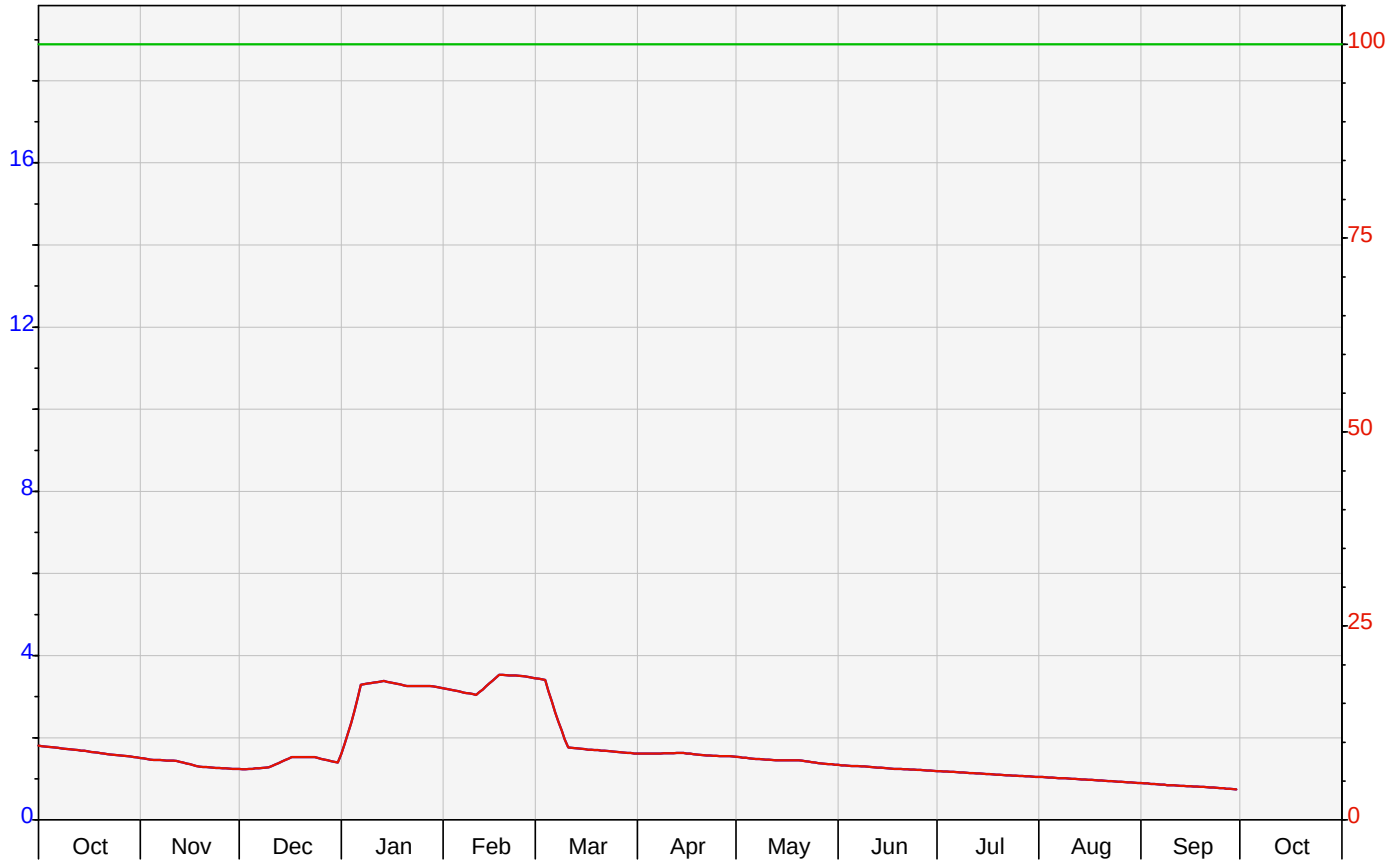
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— A6R002	Glen Alpine Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— A6R002	Glen Alpine Dam	210.00% Full (nett)	Weekly Reading	WB
— A6R002	Glen Alpine Dam	210.00% Full (nett)		TT



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HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— A7R002	Houtrivier Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— A7R002	Houtrivier Dam	210.00% Full (nett)	Weekly Reading	WB
— A7R002	Houtrivier Dam	210.00% Full (nett)		TT

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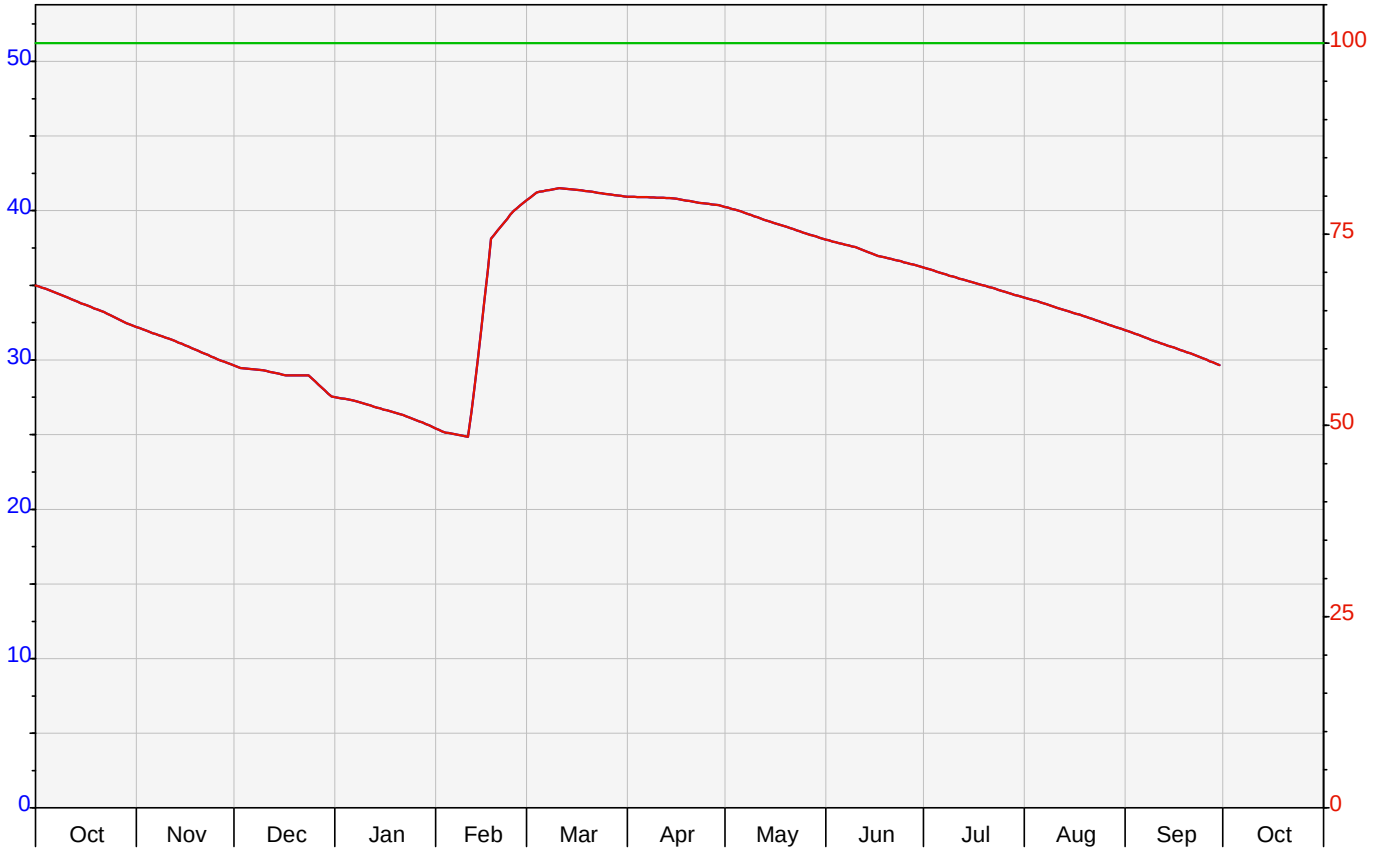
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

A8R001	Nzhelele Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
A8R001	Nzhelele Dam	210.00% Full (nett)	Weekly Reading	WB
A8R001	Nzhelele Dam	210.00% Full (nett)		TT



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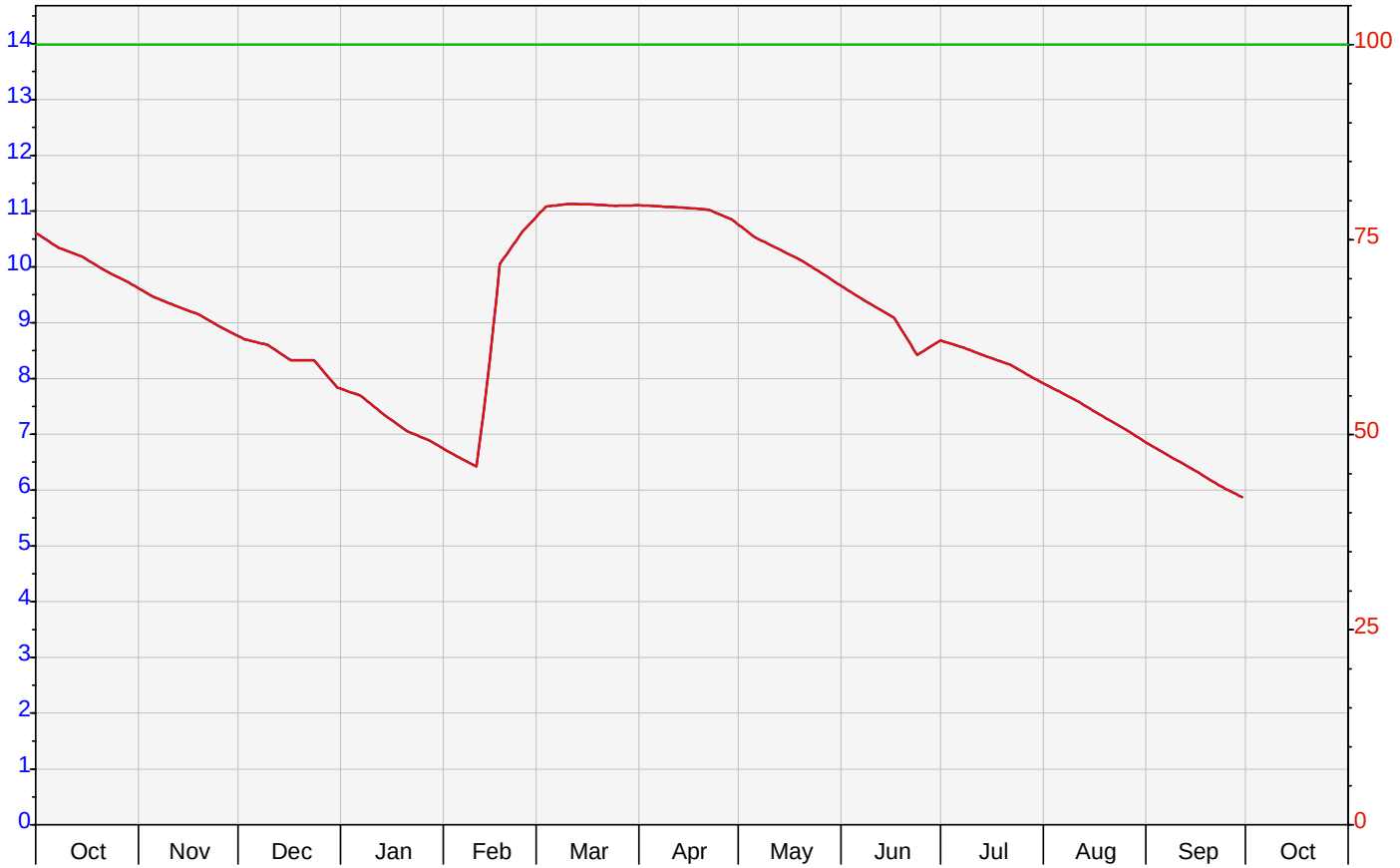
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— A8R002	Luphephe Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— A8R002	Luphephe Dam	210.00% Full (nett)	Weekly Reading	WB
— A8R002	Luphephe Dam	210.00% Full (nett)		TT



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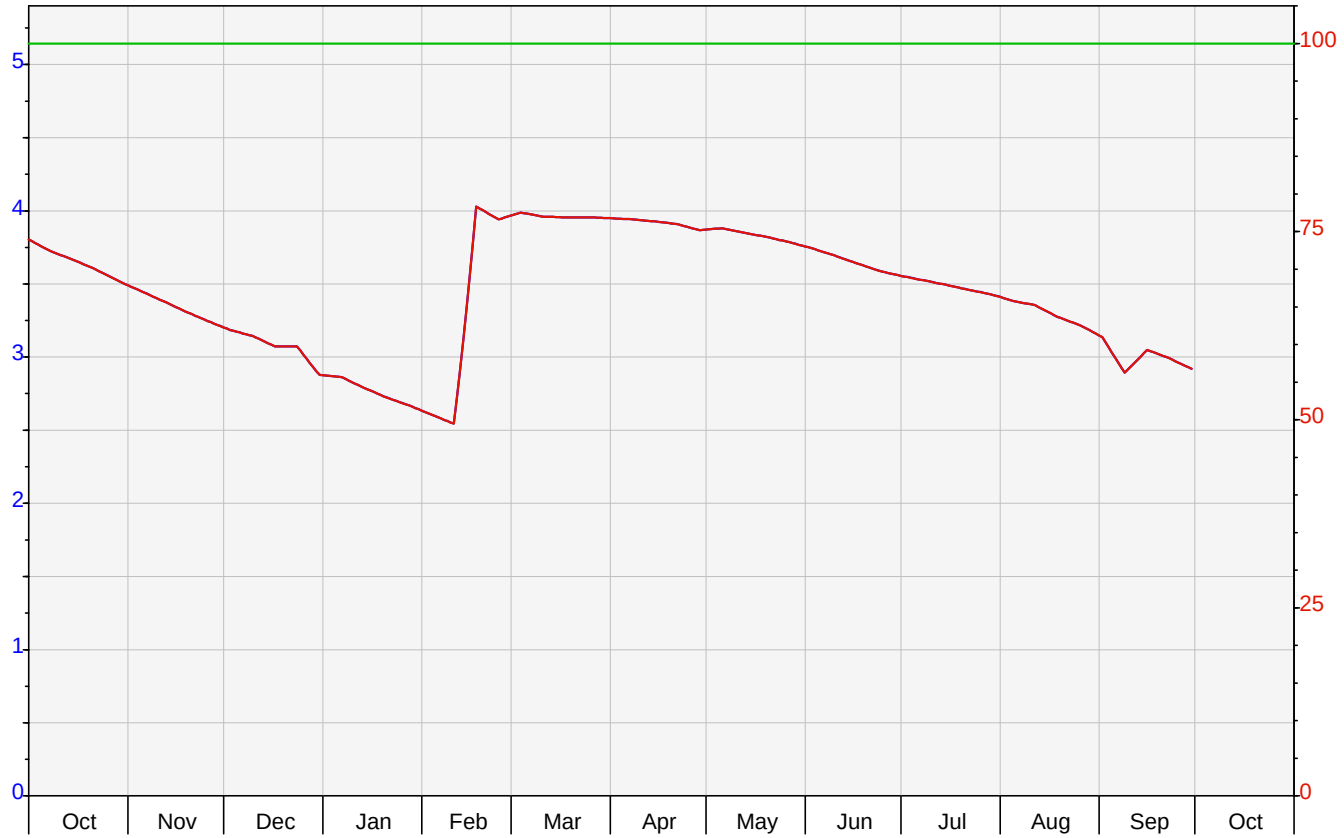
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— A8R003	Nwanedzi Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— A8R003	Nwanedzi Dam	210.00% Full (nett)	Weekly Reading	WB
— A8R003	Nwanedzi Dam	210.00% Full (nett)		TT



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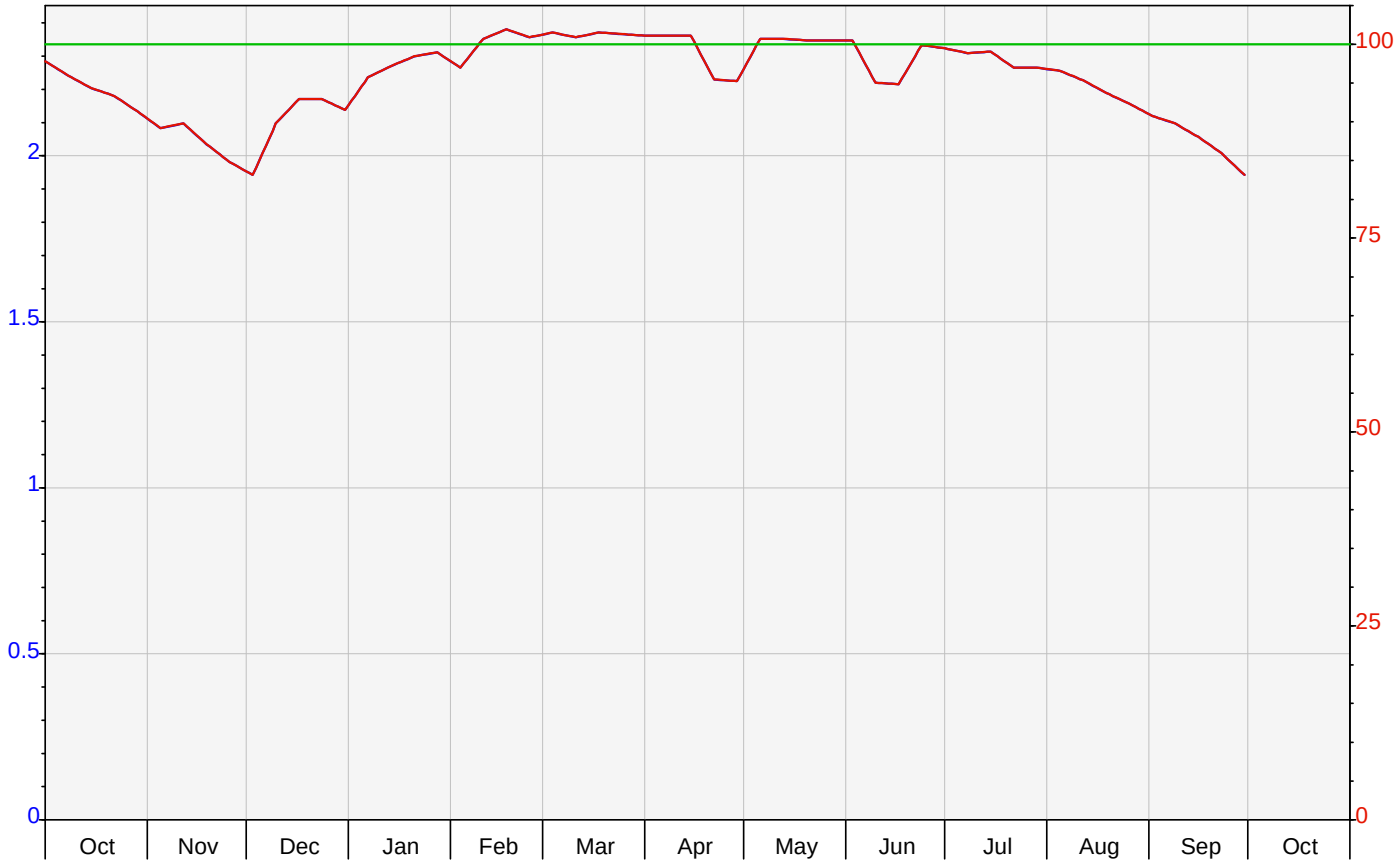
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— A8R004	Mutshedzi Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— A8R004	Mutshedzi Dam	210.00% Full (nett)	Weekly Reading	WB
— A8R004	Mutshedzi Dam	210.00% Full (nett)		TT



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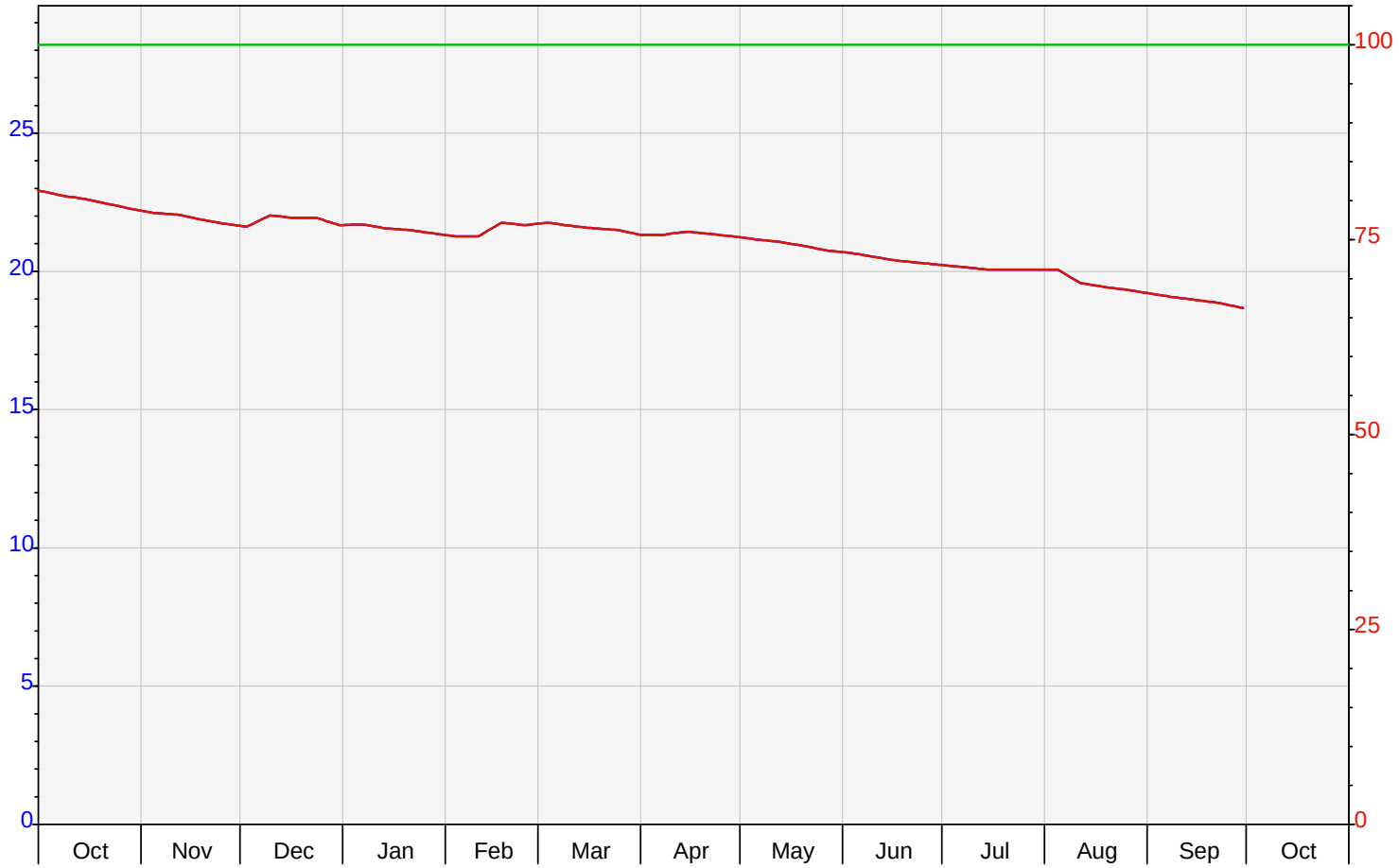
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— A9R001	Albasini Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— A9R001	Albasini Dam	210.00% Full (nett)	Weekly Reading	WB
— A9R001	Albasini Dam	210.00% Full (nett)		TT



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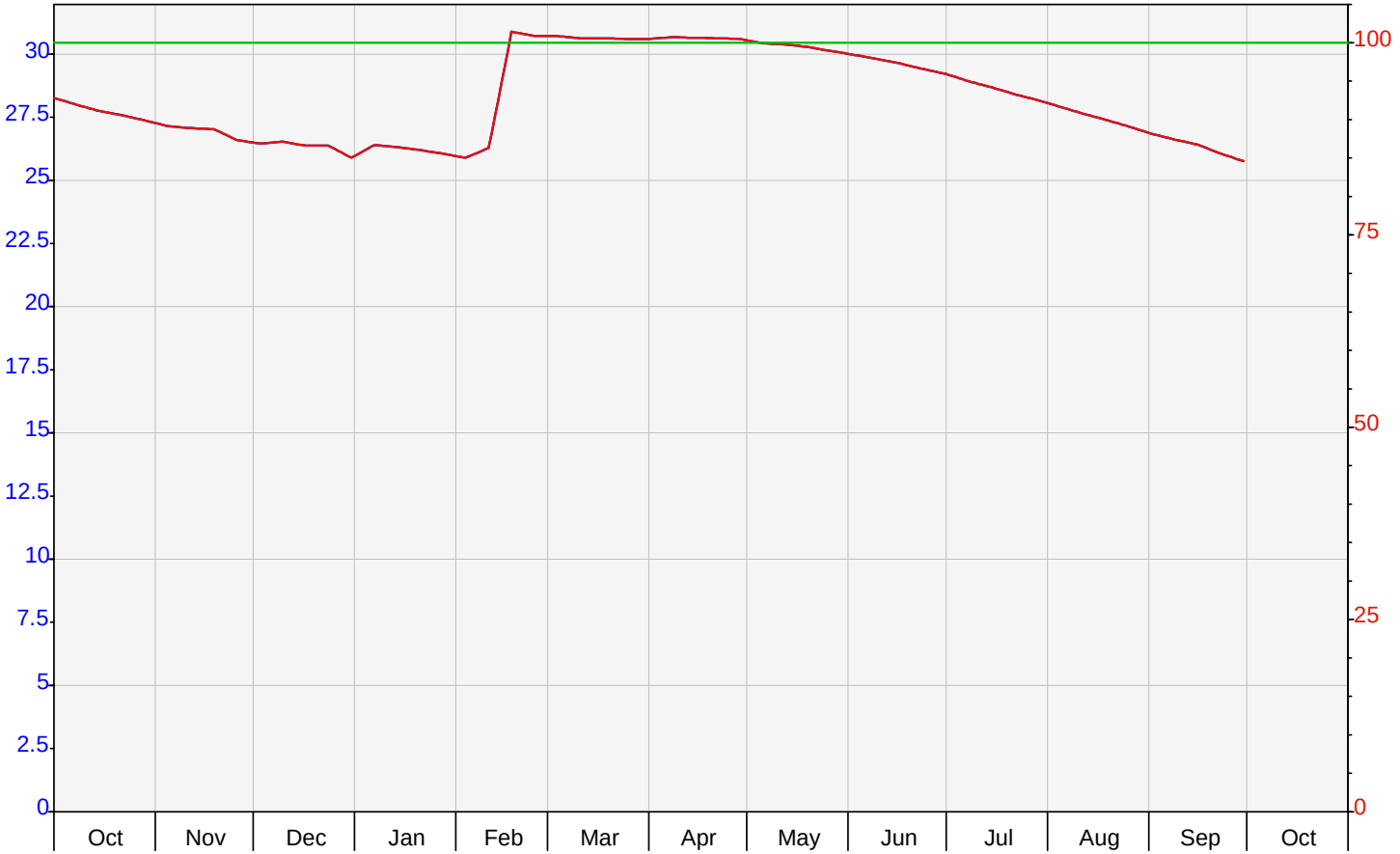
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— A9R002	Vondo Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— A9R002	Vondo Dam	210.00% Full (nett)	Weekly Reading	WB
— A9R002	Vondo Dam	210.00% Full (nett)		TT



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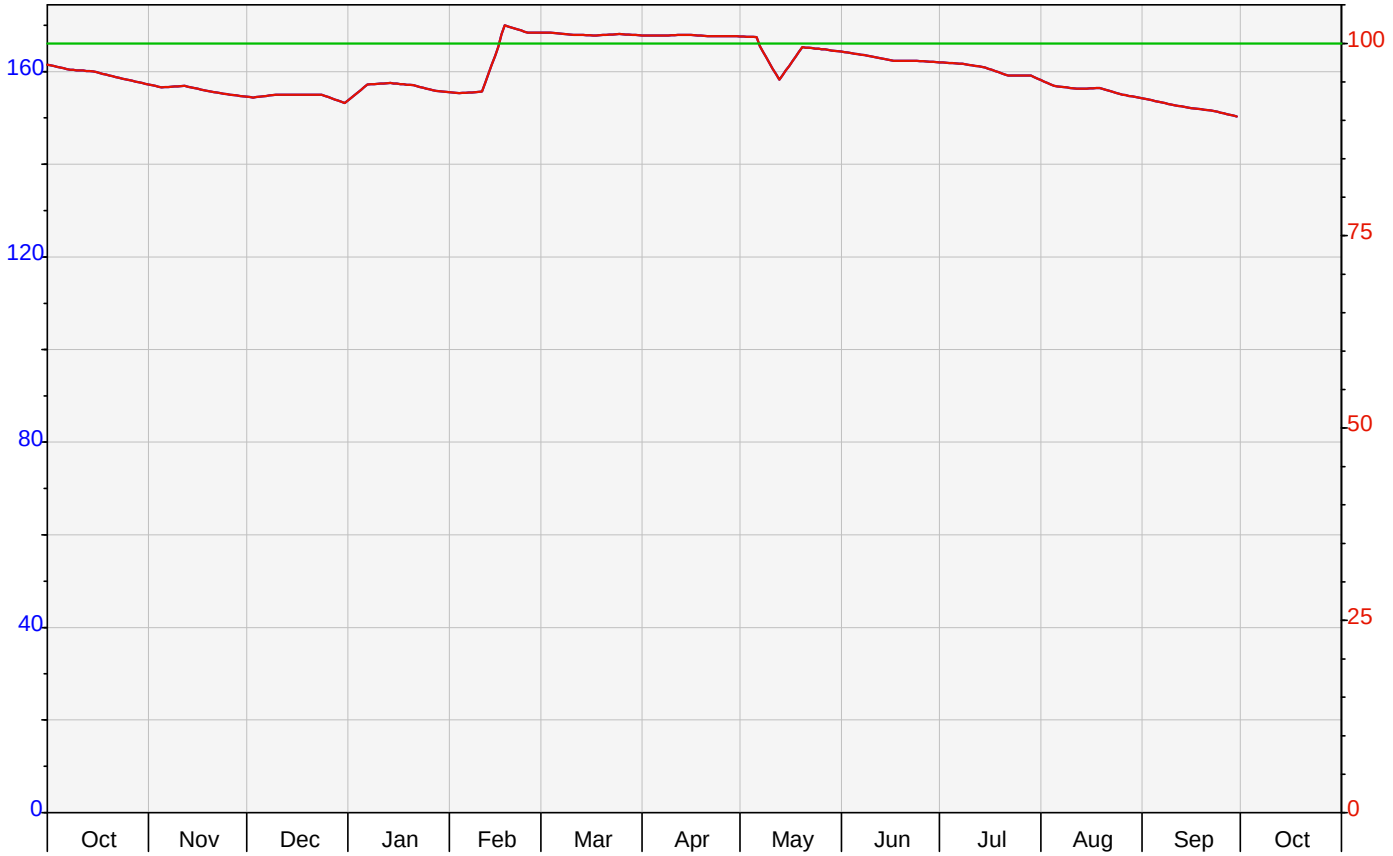
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— A9R004	Nandoni Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— A9R004	Nandoni Dam	210.00% Full (nett)	Weekly Reading	WB
— A9R004	Nandoni Dam	210.00% Full (nett)		TT



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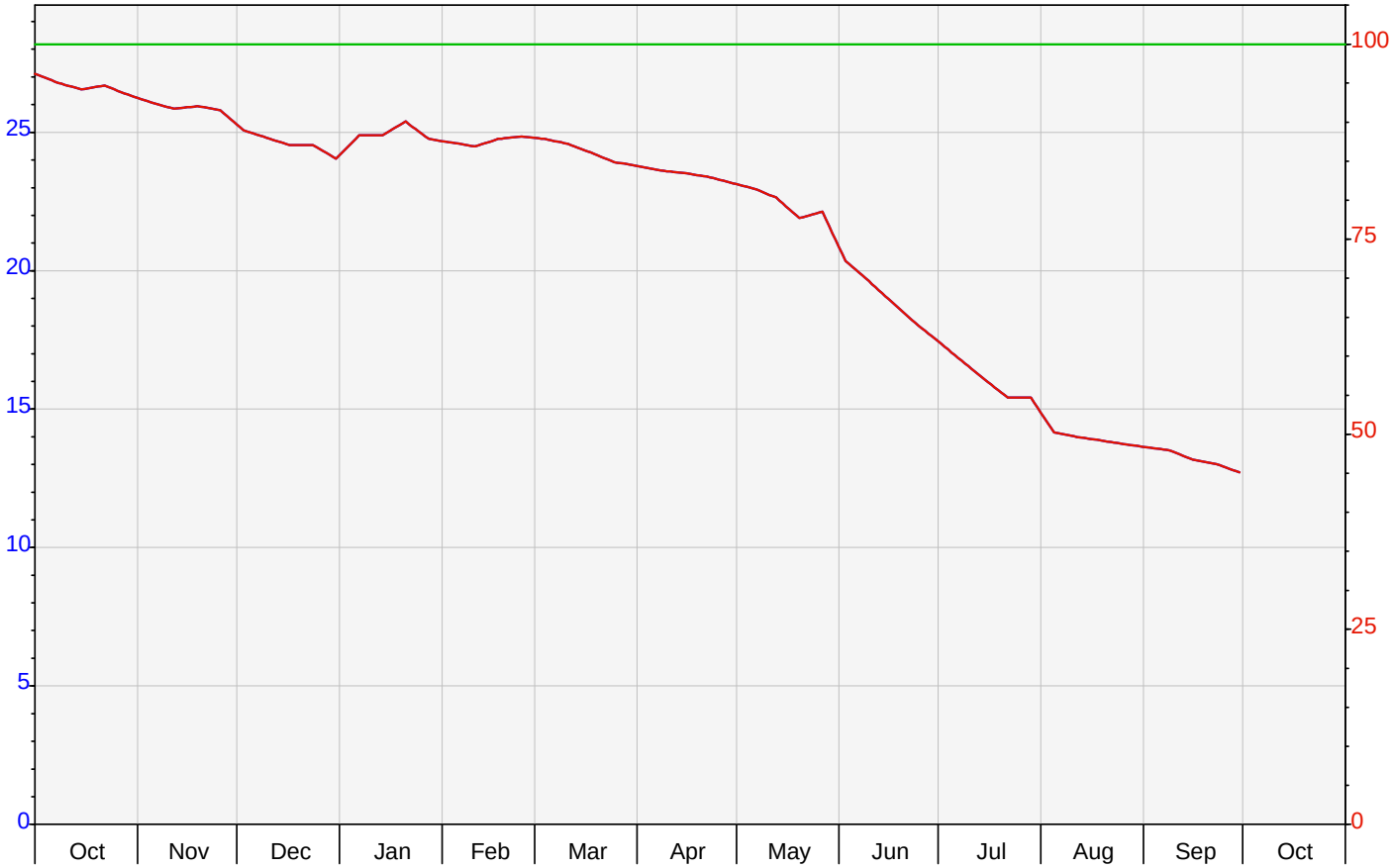
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— B3R001	Rust De Winter Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— B3R001	Rust De Winter Dam	210.00% Full (nett)	Weekly Reading	WB
— B3R001	Rust De Winter Dam	210.00% Full (nett)		TT



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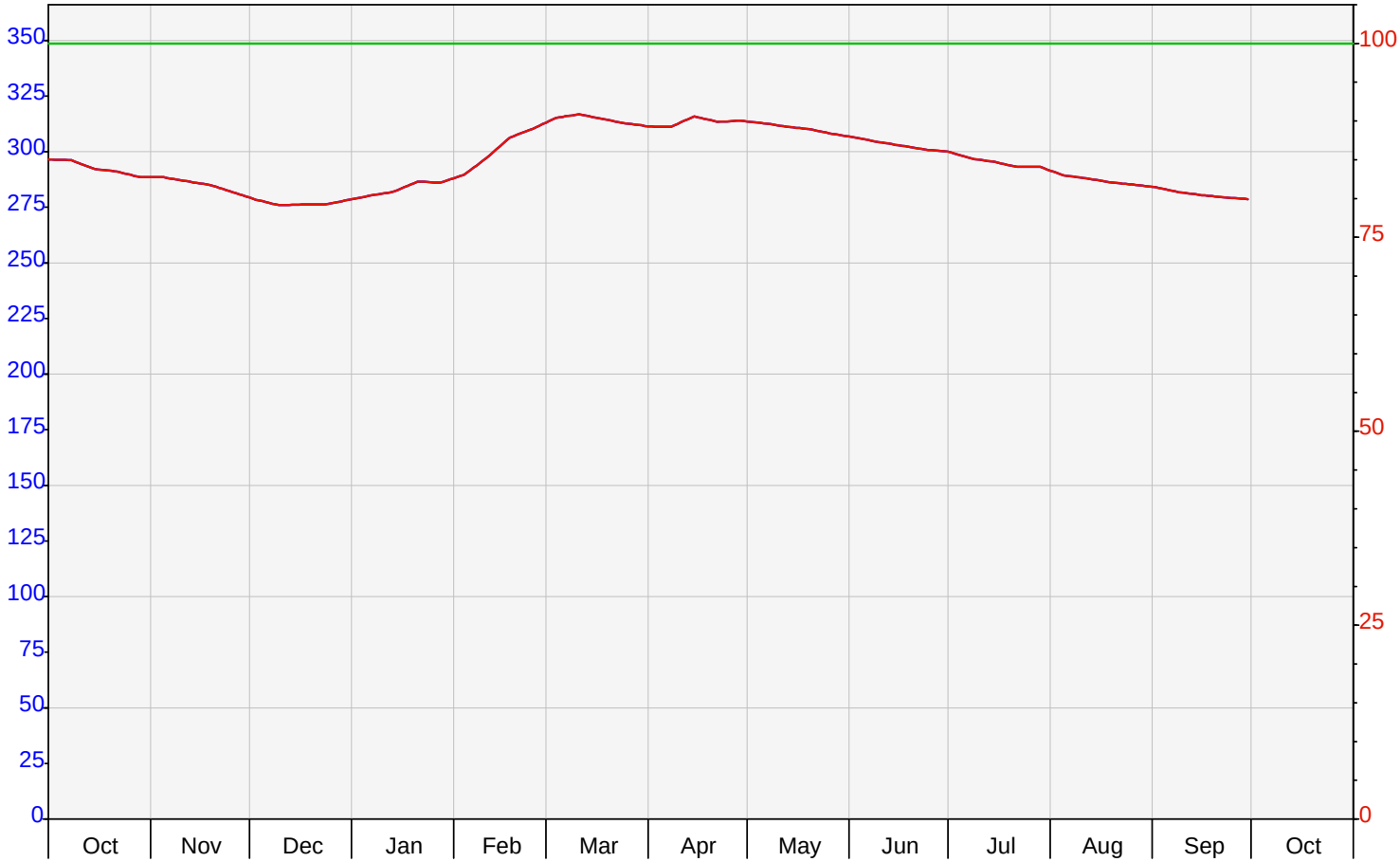
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

B4R007	De Hoop Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
B4R007	De Hoop Dam	210.00% Full (nett)	Weekly Reading	WB
B4R007	De Hoop Dam	210.00% Full (nett)		TT



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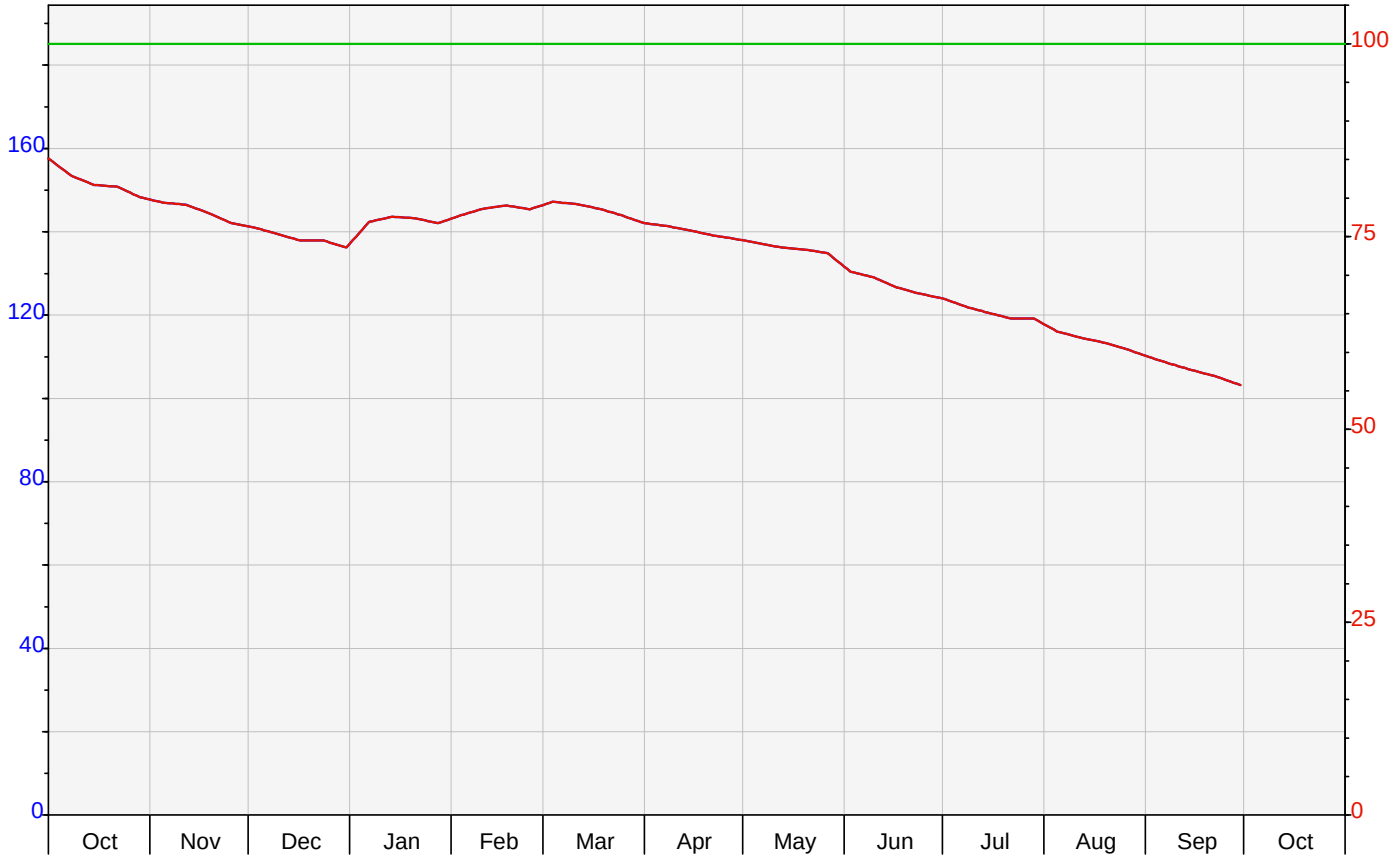
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— B5R002	Flag Boshielo Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— B5R002	Flag Boshielo Dam	210.00% Full (nett)	Weekly Reading	WB
— B5R002	Flag Boshielo Dam	210.00% Full (nett)		TT



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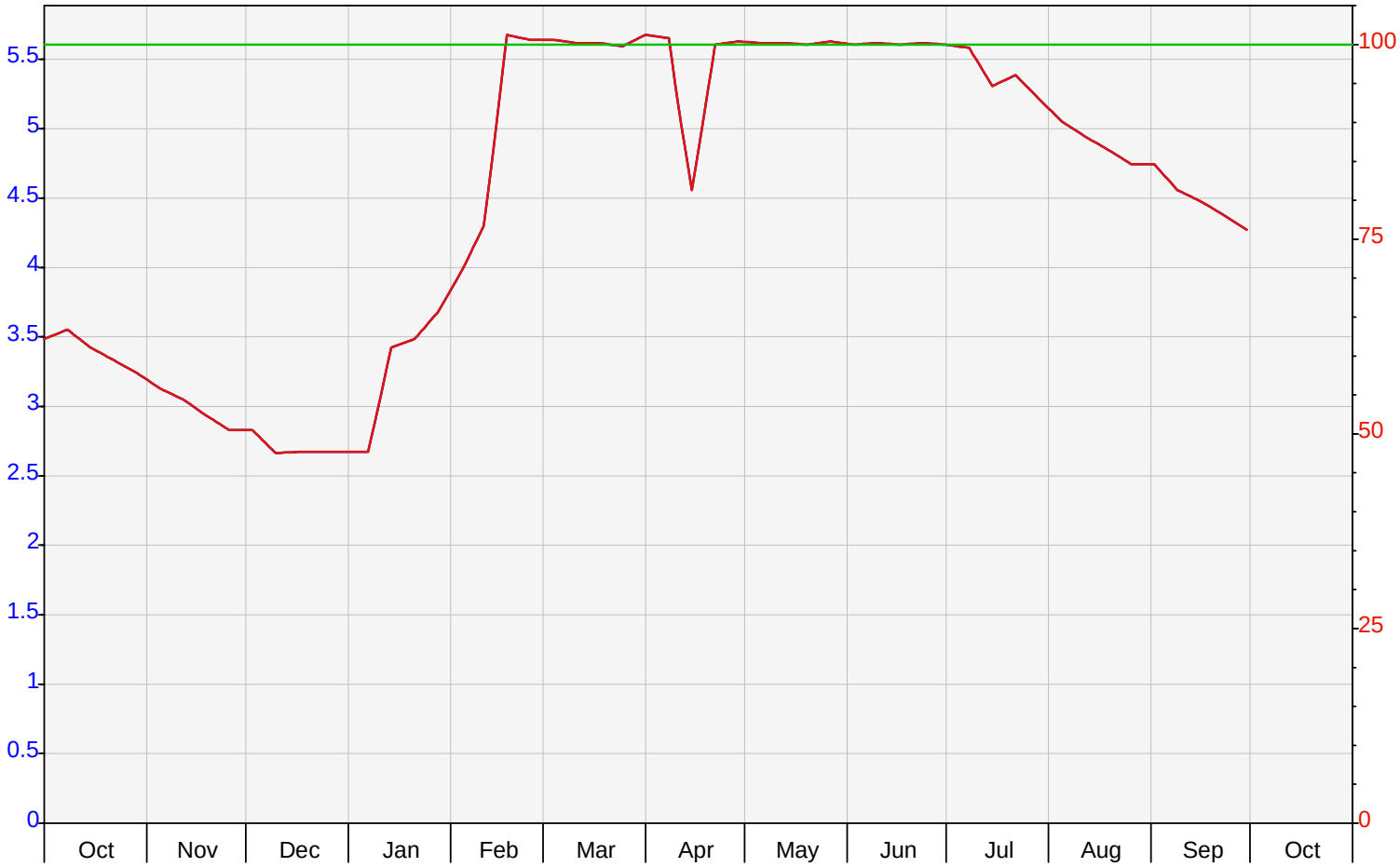
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— B7R001	Klaserie Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— B7R001	Klaserie Dam	210.00% Full (nett)	Weekly Reading	WB
— B7R001	Klaserie Dam	210.00% Full (nett)		TT



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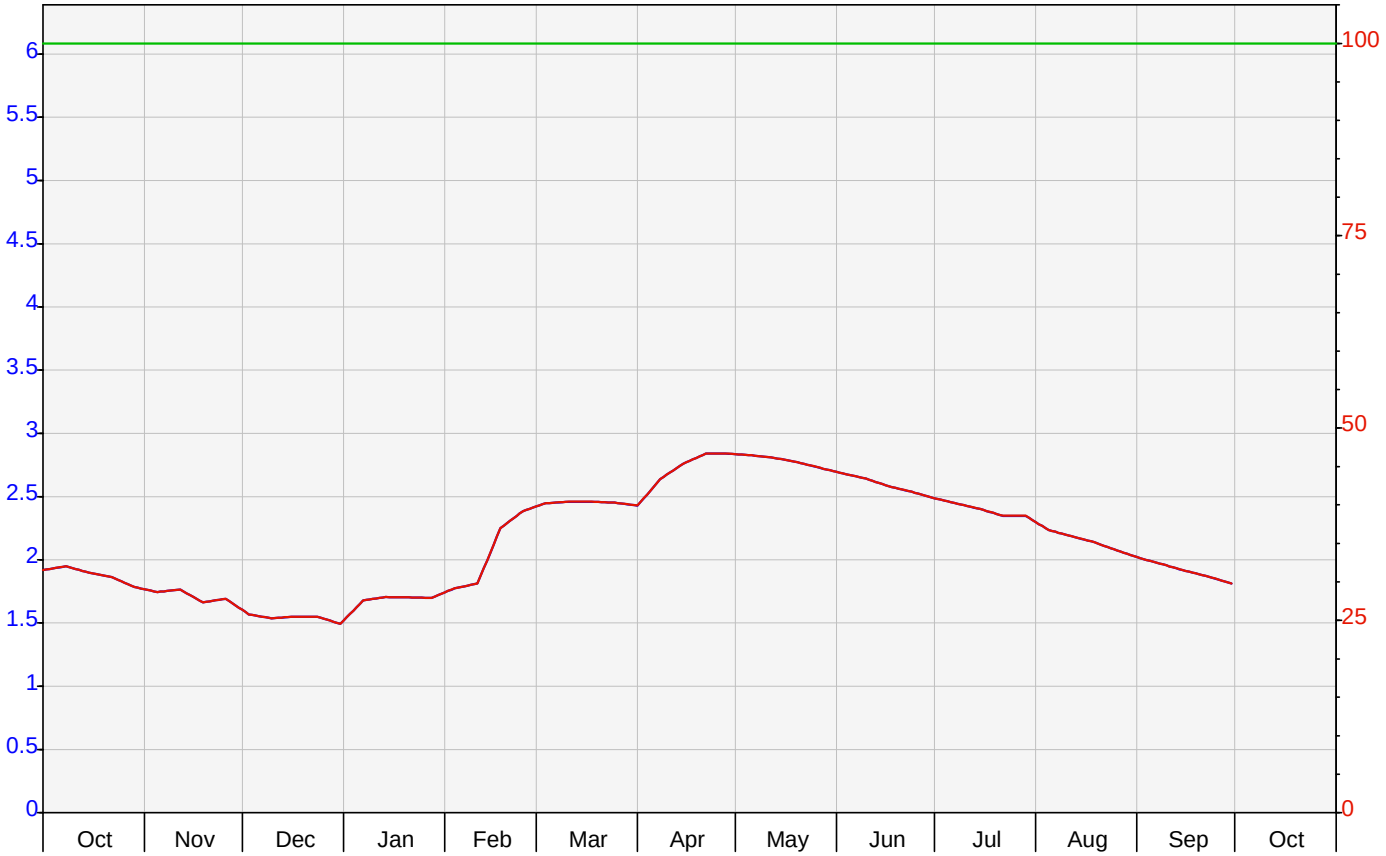
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— B7R003	Tours Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— B7R003	Tours Dam	210.00% Full (nett)	Weekly Reading	WB
— B7R003	Tours Dam	210.00% Full (nett)		TT



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HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— B8R001	Ebenezer Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— B8R001	Ebenezer Dam	210.00% Full (nett)	Weekly Reading	WB
— B8R001	Ebenezer Dam	210.00% Full (nett)		TT

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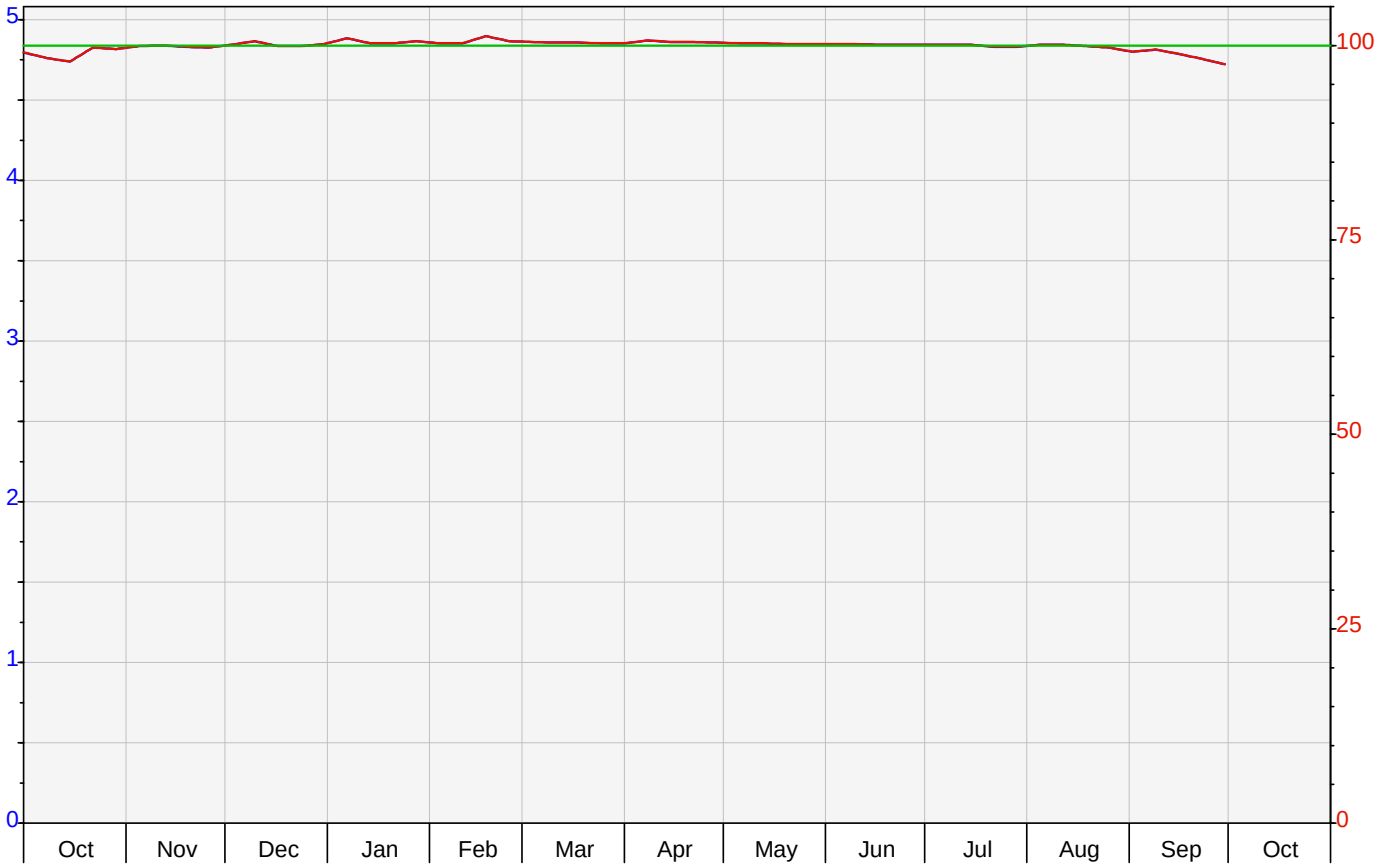
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— B8R003	Magoebaskloof Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— B8R003	Magoebaskloof Dam	210.00% Full (nett)	Weekly Reading	WB
— B8R003	Magoebaskloof Dam	210.00% Full (nett)		TT



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HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— B8R005	Tzaneen Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— B8R005	Tzaneen Dam	210.00% Full (nett)	Weekly Reading	WB
— B8R005	Tzaneen Dam	210.00% Full (nett)		TT

Department of Water and Sanitation

HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— B8R006	Dap Naude Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— B8R006	Dap Naude Dam	210.00% Full (nett)	Weekly Reading	WB
— B8R006	Dap Naude Dam	210.00% Full (nett)		TT

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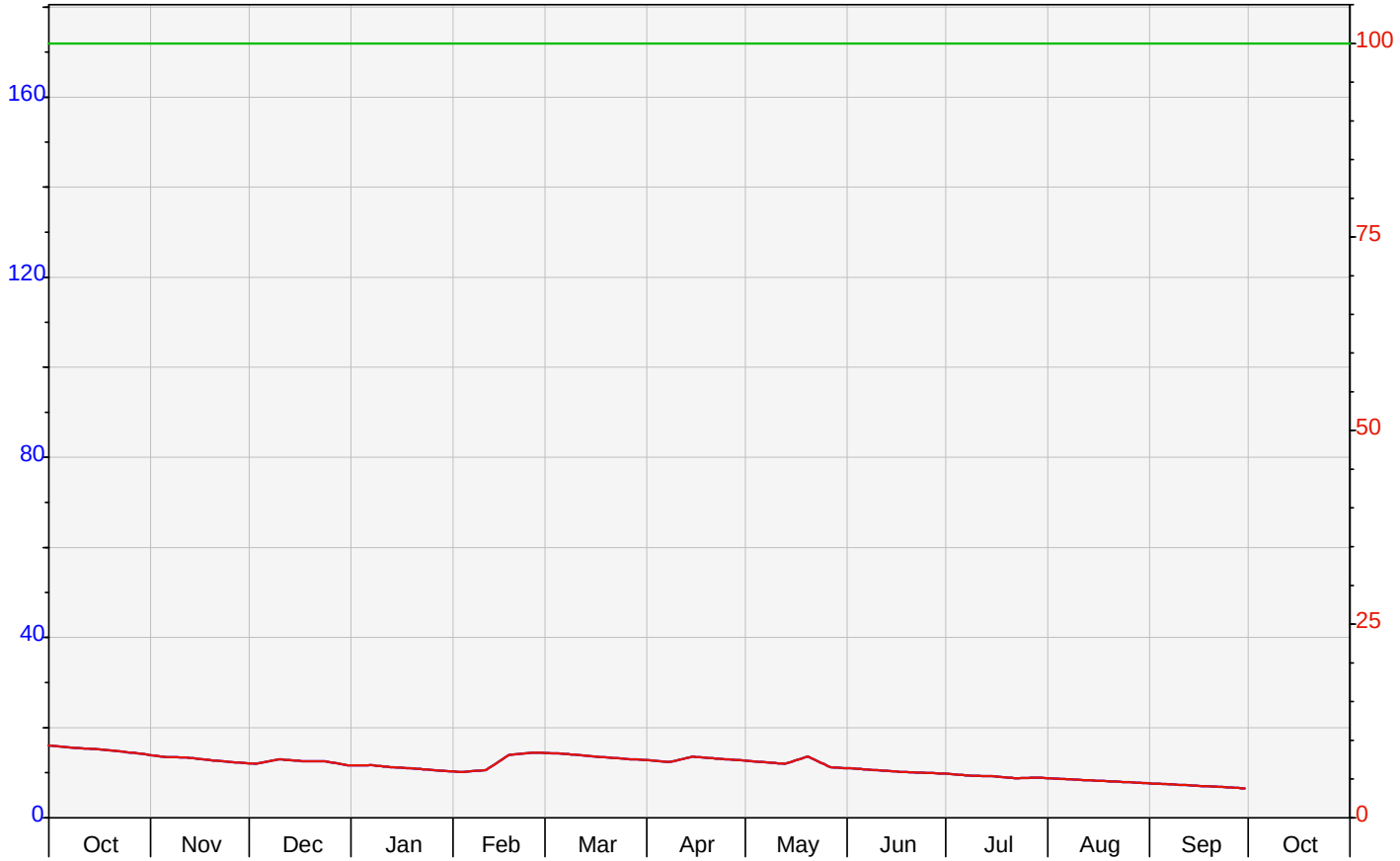
HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

— B8R007	Middel-Letaba Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
— B8R007	Middel-Letaba Dam	210.00% Full (nett)	Weekly Reading	WB
— B8R007	Middel-Letaba Dam	210.00% Full (nett)		TT



Department of Water and Sanitation

HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

B8R009	Nsami Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
B8R009	Nsami Dam	210.00% Full (nett)	Weekly Reading	WB
B8R009	Nsami Dam	210.00% Full (nett)		TT

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HYPLOT V134 Output 01/10/2019

Period 13 Month 01/10/2018 to 01/11/2019 2018-19

B8R011	Modjadji Dam	198.00Res Nett Cap (MCM)	Weekly Reading	WB
B8R011	Modjadji Dam	210.00% Full (nett)	Weekly Reading	WB
B8R011	Modjadji Dam	210.00% Full (nett)		TT