CLASSIFICATION OF SIGNIFICANT WATER RESOURCES IN THE OLIFANTS/DOORN WATER MANAGEMENT AREA :

Starter Configurations

Toni Belcher 06 October 2011

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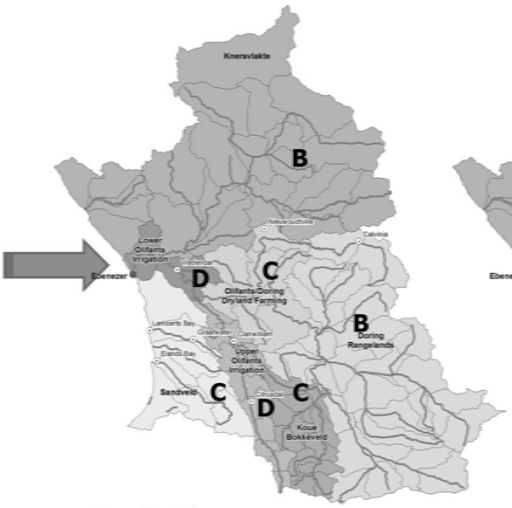
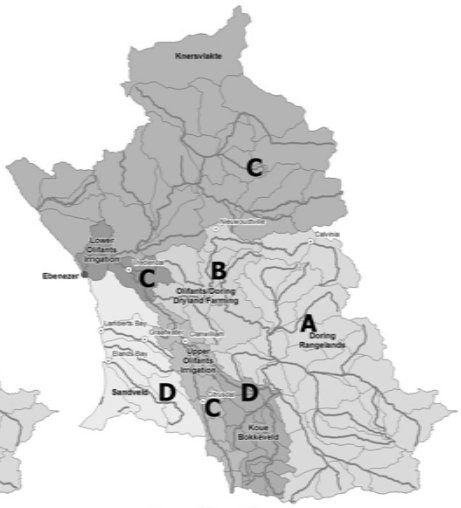
Scenario 1:



Implications:
- Economic;
- Social; and
- Ecological

Scenario n:



Implications:
- Economic;
- Social; and
- Ecological

Ecological Categories

A-B Largely Natural

B-C Moderately used/impacted

C-D Heavily used/impacted

E-F Unacceptably degraded

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Present Ecological Categories (PES)

DESCRIPTION	Color codes
Unmodified, natural.	**A**
Largely natural with few modifications.	**B**
Moderately modified.	**C**
Largely modified.	**D**
The loss of natural habitat, biota and basic ecosystem functions are extensive.	**E**
Modifications have reached a critical level and the lotic system has been modified completely with an almost complete loss of natural habitat and biota.	**F**

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STARTER CONFIGURATION SCENARIOS

- Scenario 1 - Ecological Sustainability Baseline Configuration (ESBC) scenario (which would permit maximum use);
- Scenario 2 - Present Ecological State (PES) scenario;
- Scenario 3 - RDM scenario (approved ecological Reserve);
- Scenario 4- ESBC with conservation targets; and
- Scenario 5 - PES with Conservation targets Scenario.

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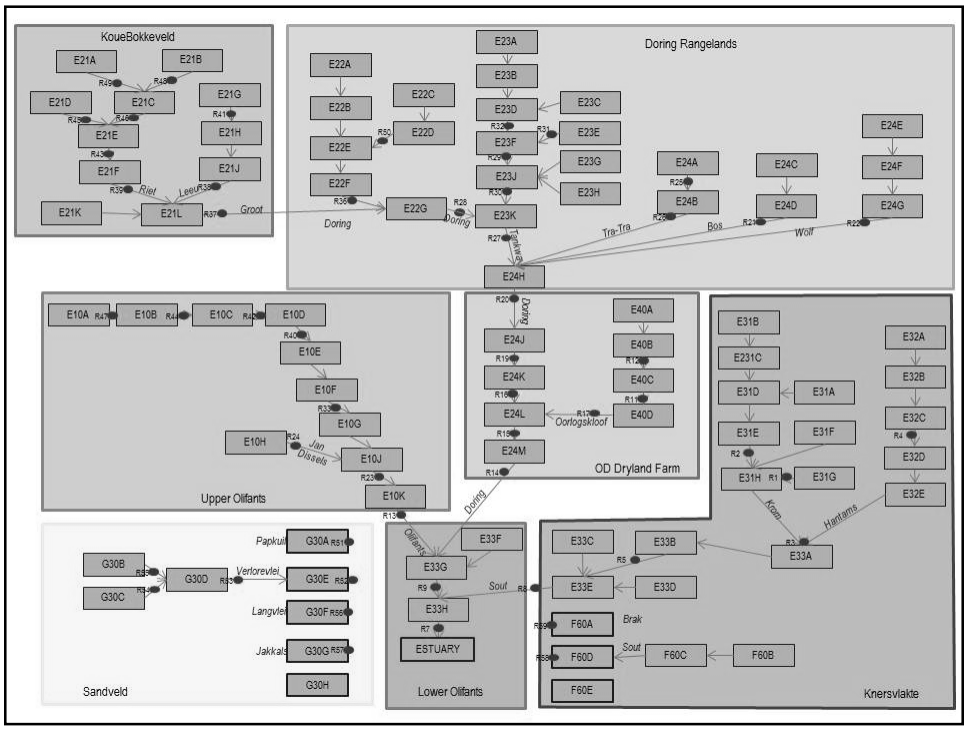

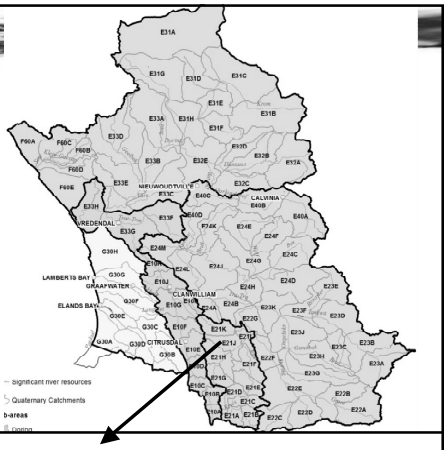

		Incremental							
		A/B		B		C		D	
Quaternary	inc nMAR	EWR	%	EWR	%	EWR	%	EWR	%
E21H	83.495	30.175	36.14	24.702	29.59	16.615	19.90	10.788	12.92
E21J	1.747	0.66	37.76	0.541	30.93	0.364	20.81	0.238	13.61

		Cumulative							
		A/B		B		C		D	
Quaternary	cum nMAR	EWR	%	EWR	%	EWR	%	EWR	%
E21H	138.715	50.142	36.15	41.048	29.59	27.61	19.9	17.926	12.92
E21J	140.453	56.606	40.3	51.481	36.65	30.502	21.72	21.846	15.55

D category - starter configuration

Olifants catchment

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Node	Quaternary Single	Quaternary Multiple	Directly linked nodes	Ecol Category (Node) D C B A/B	IncremFlow Category D C B A/B	Increm input	Channel evap	Cumul flow	EWR at node	Balance
48	E21A		0			**5.096**		5.096	5.096	0.000
49	E21B		0			**0.138**		0.138	0.138	0.000
46	E21C		2 49,48			0.144	0.18	5.198	5.285	-0.087
45	E21D		0			**6.490**		6.490	6.490	0.000
43	E21E		2 46,45			0.181	0.40	11.469	11.890	-0.421
39	E21F		1 43			0.264	0.71	11.023	15.012	-3.989
41	E21G		0			**7.139**		7.139	7.139	0.000
38	E21H	E21J	1 41			*11.026*	0.15	18.015	21.846	-3.831
37	E21K	E21L	2 38,39			0.325	0.60	28.763	30.314	-1.551
50	E22C	E22D	0			**0.601**		0.601	0.302	0.299
36	E22A	E22B E22E E22F	1 50			*3.154*	1.77	1.985	2.308	-0.323
28	E22G		2 37,36			0.791	1.26	30.279	40.196	-9.917
32	E23A	E23B E23C E23D	0			**2.991**		2.991	2.991	0.000
31	E23E		0			**0.666**		0.666	0.666	0.000
29	E23F		2 32,31			0.558	0.56	3.655	4.215	-0.560
30	E23G	E23H E23J	1 29			**2.716**		6.371	6.931	-0.560
27	E23K		2 28,30			0.675	0.84	36.485	39.666	-3.181
25	E24A		0			**0.510**		0.510	0.510	0.000
26	E24B		1 25			0.935	0.49	0.955	1.445	-0.490
21	E24C	E24D	0			**3.553**		3.553	3.554	-0.001
22	E24E	E24F E24G	0			**3.762**		3.762	3.762	0.000
20	E24H		4 27,26,21,2			1.040	2.00	43.795	63.240	-19.445
19	E24J		1 20			2.322	1.61	44.507	66.085	-21.578
16	E24K		1 19			**1.393**		45.900	67.805	-21.905
12	E40A	E40B	0			**3.288**		3.288	1.878	1.410
11	E40C		1 12			1.057	1.38	2.965	4.345	-1.380
17	E40D		1 11			1.085	1.33	2.720	5.430	-2.710
15	E24L		2 16,17			**1.052**	2.01	47.662	62.376	-14.714
14	E24M		1 15			1.149	1.77	47.041	77.744	-31.707
47	E10A		0			**7.834**		7.834	7.834	0.000
44	E10B		1 47			9.309	0.11	17.033	20.175	-3.142
42	E10C		1 44			7.268	0.21	24.091	28.418	-4.327
40	E10D		1 42			6.985	0.28	30.796	62.013	-31.217
33	E10E	E10F	1 40			*16.884*	0.77	46.910	94.296	-47.386
24	E10H		0			**4.874**		4.874	4.874	0.000
23	E10G	E10J	2 33,24			*15.209*	2.16	64.833	132.157	-67.324
13	E10K		1 23			1.031	0.73	65.134	134.213	-69.079
4	E32A	E32B E32C	0			***1.040***		1.040	1.040	0.000
2	E31B	E31C E31D E31E	0			***0.314***		0.314	0.314	0.000
1	E31G		0			**0.089**		0.089	0.089	0.000
3	E31F	E31H E32E	3 4,2,1			*0.490*	0.20	1.733	2.786	-1.053
5	E33A	E33B	1 3			*0.426*	0.05	2.109	2.354	-0.245
8	E33C	E33D E33E	1 5			*0.426*	0.10	2.435	1.691	0.744
9	E33F	E33G	2 14,13			*0.611*	1.30	111.486	124.883	-13.397
7	E33H		2 8,9			0.084	0.34	113.665	128.079	-14.414
Est	E33H		1 7			0.084		113.749	518.000	-404.251

D category - starter configuration: Sandveld & F60 catchment

	F60A		0		**0.023**		0.023	0.023	0.000
58	F60D	F60C F60B	0		**0.093**	0.20	-0.107	0.093	-0.200
	F60E		0		***0.006***		0.006	0.006	0.000
51	G30A		0		*1.244*		1.244	1.244	0.000
55	G30B		0		*2.028*		2.028	2.028	0.000
54	G30C		0		*2.429*		2.429	2.429	0.000
53	G30D		2 54,55		*1.829*	0.55	5.736	6.330	-0.594
52	G30E		1 53		**0.874**	0.74	5.870	7.222	-1.352
56	G30F		0		***1.649***		1.649	1.649	0.000
57	G30G		0		***0.659***		0.659	0.659	0.000
	G30H		0		***0.875***		0.875	0.875	0.000

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Scenario 1: Ecological Sustainability Baseline configuration

Olifants catchment

Node	Quaternary Single	Quaternary Multiple	Directly linked nodes	Ecol Category (Node) D C B A/B	Increm Flow Category D C B A/B	Increm input	Channel evap	Cumul flow	EWR at node	Balance
48	E21A		0			**7.848**		7.848	7.848	0.000
49	E21B		0			**0.138**		0.138	0.138	0.000
46	E21C		2 49,48			0.144	0.18	7.950	5.285	2.665
45	E21D		0			**9.996**		9.996	9.996	0.000
43	E21E		2 46,45			0.181	0.40	17.727	11.890	5.837
39	E21F		1 43			0.264	0.71	17.281	15.012	2.269
41	E21G		0			**7.139**		7.139	7.139	0.000
38	E21H	E21J	1 41			*16.979*	0.15	23.968	21.846	2.122
37	E21K	E21L	2 38,39			0.325	0.60	40.974	30.314	10.660
50	E22C	E22D	0			***0.945***		0.945	0.475	0.470
36	E22A	E22B E22E E22F	1 50			*7.417*	1.77	6.592	2.308	4.284
28	E22G		2 37,36			0.791	1.26	47.097	40.196	6.901
32	E23A	E23B E23C E23D	0			***4.696***		4.696	4.695	0.001
31	E23E		0			***0.666***		0.666	0.666	0.000
29	E23F		2 32,31			0.876	0.56	5.678	4.215	1.463
30	E23G	E23H E23J	1 29			***2.716***		8.394	6.931	1.463
27	E23K		2 28,30			1.059	0.84	55.710	39.666	16.044
25	E24A		0			***0.510***		0.510	0.510	0.000
26	E24B		1 25			1.466	0.49	1.486	1.445	0.041
21	E24C	E24D	0			***5.575***		5.575	5.576	-0.001
22	E24E	E24F E24G	0			***5.902***		5.902	5.902	0.000
20	E24H		4 27,26,21,2			1.613	2.00	68.286	63.240	5.046
19	E24J		1 20			2.322	1.61	68.998	66.085	2.913
16	E24K		1 19			***1.393***		70.391	67.805	2.586
12	E40A	E40B	0			***7.714***		7.714	4.405	3.309
11	E40C		1 12			1.659	1.38	7.993	4.345	3.648
17	E40D		1 11			1.702	1.33	8.365	5.430	2.935
15	E24L		2 16,17			***1.052***	2.01	77.798	62.376	15.422
14	E24M		1 15			1.861	1.77	77.889	77.744	0.145
47	E10A		0			***17.931***		17.931	17.931	0.000
44	E10B		1 47			21.183	0.11	39.004	20.175	18.829
42	E10C		1 44			16.586	0.21	55.380	28.418	26.962
40	E10D		1 42			15.896	0.28	70.996	62.013	8.983
33	E10E	E10F	1 40			*38.824*	0.77	109.050	94.296	14.754
24	E10H		0			***4.874***		4.874	4.874	0.000
23	E10G	E10J	2 33,24			23.326	2.16	135.090	132.157	2.933
13	E10K		1 23			1.031	0.73	135.391	134.213	1.178
4	E32A	E32B E32C	0			***1.634***		1.634	1.634	0.000
2	E31B	E31C E31D E31E	0			***0.495***		0.495	0.494	0.001
1	E31G		0			***0.089***		0.089	0.089	0.000
3	E31F	E31H E32E	3 4,2,1			*0.772*	0.20	2.790	2.786	0.004
5	E33A	E33B	1 3			*0.426*	0.05	3.166	2.354	0.812
8	E33C	E33D E33E	1 5			*0.426*	0.10	3.492	1.691	1.801
9	E33F	E33G	2 14,13			*0.611*	1.30	212.591	124.883	87.708
7	E33H		2 8,9			0.084	0.34	215.827	128.079	87.748
Est	E33H		1 7			0.084		215.911	518.000	-302.089

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Scenario 1: Ecological Sustainability Baseline configuration: Sandveld & F60 catchment

	F60A		0			**0.023**		0.023	0.023	0.000
58	F60D	F60C F60B	0			**0.215**	0.20	0.015	0.216	-0.201
	F60E		0			***0.006***		0.006	0.006	0.000
51	G30A		0			*1.244*		1.244	1.244	0.000
55	G30B		0			*3.113*		3.113	3.113	0.000
54	G30C		0			*3.720*		3.720	3.720	0.000
53	G30D		2 54,55			*1.829*	0.55	8.112	6.330	1.782
52	G30E		1 53			**0.874**	0.74	8.246	7.222	1.024
56	G30F		0			***1.649***		1.649	1.649	0.000
57	G30G		0			***0.659***		0.659	0.659	0.000
	G30H		0			***0.875***		0.875	0.875	0.000

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Scenario 2: Present Ecological State Configuration

Olifants catchment

Node	Quaternary Single	Quaternary Multiple	Directly linked nodes	Ecol Category (Node) D C B A/B	Increm Flow Category D C B A/B	Increm input	Channel evap	Cumul flow	EWR at node	Balance
48	E21A		0			**5.096**		5.096	5.096	0.000
49	E21B		0			**0.138**		0.138	0.138	0.000
46	E21C		2 49,48			0.338	0.18	5.392	8.168	-2.776
45	E21D		0			**6.490**		6.490	6.490	0.000
43	E21E		2 46,45			0.284	0.40	11.766	27.314	-15.548
39	E21F		1 43			0.406	0.71	11.462	38.635	-27.173
41	E21G		0			**7.139**		7.139	7.139	0.000
38	E21H	E21J	1 41			*25.243*	0.15	32.232	56.606	-24.374
37	E21K	E21L	2 38,39			*0.937*	0.60	44.031	69.645	-25.614
50	E22C	E22D	0			***1.413***		1.413	0.711	0.702
36	E22A	E22B E22E E22F	1 50			*9.115*	1.77	8.758	5.427	3.331
28	E22G		2 37,36			2.242	1.26	53.771	121.620	-67.849
32	E23A	E23B E23C E23D	0			***8.629***		8.629	8.630	-0.001
31	E23E		0			**1.562**		1.562	1.562	0.000
29	E23F		2 32,31			1.310	0.56	10.941	9.895	1.046
30	E23G	E23H E23J	1 29			***6.376***		17.317	16.272	1.045
27	E23K		2 28,30			1.947	0.84	72.195	92.254	-20.059
25	E24A		0			**1.197**		1.197	1.197	0.000
26	E24B		1 25			2.193	0.49	2.900	3.390	-0.490
21	E24C	E24D	0			**5.575**		5.575	5.576	-0.001
22	E24E	E24F E24G	0			***8.826***		8.826	8.826	0.000
20	E24H		4 27,26,21,2			2.939	2.00	90.435	191.933	-101.498
19	E24J		1 20			6.562	1.61	95.387	200.591	-105.204
16	E24K		1 19			**3.957**		99.344	266.426	-167.082
12	E40A	E40B	0			***5.159***		5.159	2.946	2.213
11	E40C		1 12			2.480	1.38	6.259	4.345	1.914
17	E40D		1 11			2.546	1.33	7.475	12.741	-5.266
15	E24L		2 16,17			**2.460**	2.01	107.269	144.163	-36.894
14	E24M		1 15			1.861	1.77	107.360	236.079	-128.719
47	E10A		0			**12.064**		12.064	12.061	0.003
44	E10B		1 47			14.200	0.11	26.154	47.241	-21.087
42	E10C		1 44			16.586	0.21	42.530	66.772	-24.242
40	E10D		1 42			10.684	0.28	52.934	71.530	-18.596
33	E10E	E10F	1 40			*25.908*	0.77	78.072	108.881	-30.809
24	E10H		0			**4.874**		4.874	4.874	0.000
23	E10G	E10J	2 33,24			*15.209*	2.16	95.995	132.157	-36.162
13	E10K		1 23			1.031	0.73	96.296	134.213	-37.917
4	E32A	E32B E32C	0			***2.444***		2.444	2.444	0.000
2	E31B	E31C E31D E31E	0			***0.739***		0.739	0.739	0.000
1	E31G		0			**0.209**		0.209	0.209	0.000
3	E31F	E31H E32E	3 4,2,1			*1.153*	0.20	4.345	6.553	-2.208
5	E33A	E33B	1 3			*0.261*	0.05	4.556	5.536	-0.980
8	E33C	E33D E33E	1 5			*0.671*	0.10	5.127	1.691	3.436
9	E33F	E33G	2 14,13			*0.611*	1.30	202.967	124.883	78.084
7	E33H		2 8,9			0.197	0.34	207.951	128.079	79.872
Est	E33H		1 7			0.084		208.035	518.000	-309.965

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Present Ecological State Configuration: Sandveld & F60 catchment

	F60A			0			**0.053**		0.053	0.053	0.000
58	F60D	F60C	F60B	0			**0.215**	0.20	0.015	0.216	-0.201
	F60E			0			***0.014***		0.014	0.014	0.000
51	G30A			0			*1.922*		1.922	1.922	0.000
55	G30B			0			*3.113*		3.113	3.113	0.000
54	G30C			0			*3.720*		3.720	3.720	0.000
53	G30D			2 54,55			*2.815*	0.55	9.098	9.706	-0.608
52	G30E			1 53			**1.347**	0.74	9.705	11.077	-1.372
56	G30F			0			***2.553***		2.553	2.553	0.000
57	G30G			0			***1.021***		1.021	1.021	0.000
	G30H			0			***1.349***		1.349	1.349	0.000

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Ecological Reserve Configuration

Olifants catchment

Node	Quaternary Single	Quaternary Multiple	Directly linked nodes	Ecol Category (Node) D C B A/B	IncremFlow Category D C B A/B	Increm input	Channel evap	Cumul flow	EWR at node	Balance
48	E21A		0			**5.096**		5.096	5.096	0.000
49	E21B		0			**0.217**		0.217	0.217	0.000
46	E21C		2 49,48			0.226	0.18	5.359	8.168	-2.809
45	E21D		0			**6.490**		6.490	6.490	0.000
43	E21E		2 46,45			0.181	0.40	11.630	18.359	-6.729
39	E21F		1 43			0.264	0.71	11.184	20.821	-9.637
41	E21G		0			**10.994**		10.994	10.994	0.000
38	E21H	E21J	1 41			*30.835*	0.15	41.679	30.502	11.177
37	E21K	E21L	2 38,39			*0.325*	0.60	52.588	46.812	5.776
50	E22C	E22D	0			**0.945**		0.945	0.475	0.470
36	E22A	E22B E22E E22F	1 50			*7.417*	1.77	6.592	5.427	1.165
28	E22G		2 37,36			0.791	1.26	58.711	121.620	-62.909
32	E23A	E23B E23C E23D	0			**4.696**		4.696	4.695	0.001
31	E23E		0			**1.045**		1.045	1.045	0.000
29	E23F		2 32,31			0.558	0.56	5.739	6.616	-0.877
30	E23G	E23H E23J	1 29			**4.265**		10.004	10.880	-0.876
27	E23K		2 28,30			0.675	0.84	68.550	39.666	28.884
25	E24A		0			**1.197**		1.197	1.197	0.000
26	E24B		1 25			2.193	0.49	2.900	3.390	-0.490
21	E24C	E24D	0			**5.575**		5.575	5.576	-0.001
22	E24E	E24F E24G	0			**5.902**		5.902	5.902	0.000
20	E24H		4 27,26,21,22			1.040	2.00	81.967	191.933	-109.966
19	E24J		1 20			2.322	1.61	82.679	200.591	-117.912
16	E24K		1 19			**3.236**		85.915	205.375	-119.460
12	E40A	E40B	0			***5.159***		5.159	2.946	2.213
11	E40C		1 12			2.480	1.38	6.259	10.195	-3.936
17	E40D		1 11			2.546	1.33	7.475	12.741	-5.266
15	E24L		2 16,17			**1.646**	2.01	93.026	96.754	-3.728
14	E24M		1 15			1.149	1.77	92.405	236.079	-143.674
47	E10A		0			**7.834**		7.834	7.834	0.000
44	E10B		1 47			21.183	0.11	28.907	47.241	-18.334
42	E10C		1 44			11.140	0.21	39.837	66.772	-26.935
40	E10D		1 42			6.985	0.28	46.542	71.530	-24.988
33	E10E	E10F	1 40			*16.884*	0.77	62.656	94.296	-31.640
24	E10H		0			**4.874**		4.874	4.874	0.000
23	E10G	E10J	2 33,24			*15.209*	2.16	80.579	132.157	-51.578
13	E10K		1 23			1.031	0.73	80.880	134.213	-53.333
4	E32A	E32B E32C	0			**1.634**		1.634	1.634	0.000
2	E31B	E31C E31D E31E	0			***0.739***		0.739	0.739	0.000
1	E31G		0			**0.140**		0.140	0.140	0.000
3	E31F	E31H E32E	3 4,2,1			*0.490*	0.20	2.803	7.381	-4.578
5	E33A	E33B	1 3			*0.426*	0.05	3.179	3.702	-0.523
8	E33C	E33D E33E	1 5			*0.426*	0.10	3.505	2.656	0.849
9	E33F	E33G	2 14,13			*0.611*	1.30	172.596	124.883	47.713
7	E33H		2 8,9			0.084	0.34	175.845	128.079	47.766
Est	E33H		1 7			0.084		175.929	597.000	-421.071

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Scenario 2: Ecological Reserve Configuration: Sandveld catchments

55	G30B		0			*3.113*		3.113	3.113	0.000
54	G30C		0			*3.720*		3.720	3.720	0.000
53	G30D		2	54,55		*4.185*	0.55	10.468	14.443	-3.975
52	G30E		1	53		**2.002**	0.74	11.730	16.479	-4.749
56	G30F		0			***2.553***		2.553	2.553	0.000
57	G30G		0			***1.021***		1.021	1.021	0.000

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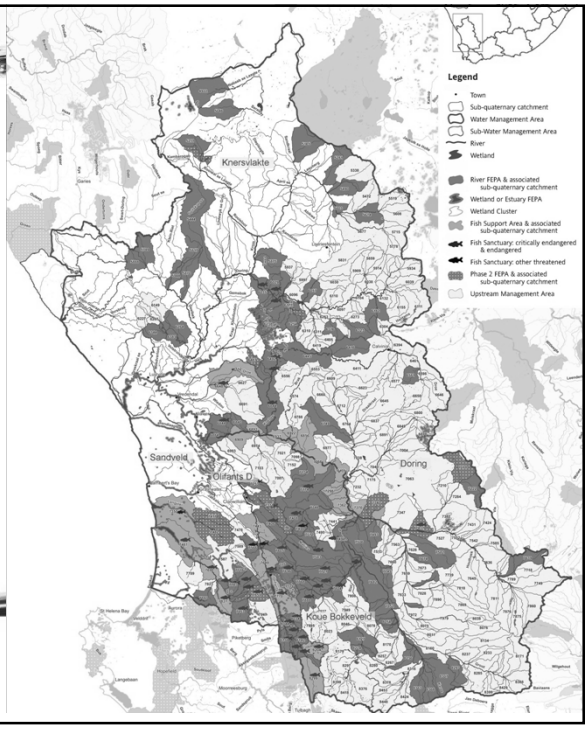
Freshwater Protected Areas



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Scenario 4: Conservation Targets & ESB Configuration

Olifants catchment

Node	Quaternary Single	Quaternary Multiple	Directly linked nodes	Ecol Category (Node) D	C	B	A/B	IncremFlow Category D	C	B	A/B	Increm input	Channel evap	Cumul flow	EWR at node	Balance
48	E21A		0									**7.848**		7.848	7.848	0.000
49	E21B		0									**0.138**		0.138	0.138	0.000
46	E21C		2 49,48									0.416	0.18	8.222	5.285	2.937
45	E21D		0									**9.996**		9.996	9.996	0.000
43	E21E		2 46,45									0.523	0.40	18.341	11.890	6.451
39	E21F		1 43									0.739	0.71	18.370	15.012	3.358
41	E21G		0									**7.139**		7.139	7.139	0.000
38	E21H	E21J	1 41									*30.835*	0.15	37.824	21.846	15.978
37	E21K	E21L	2 38,39									*0.937*	0.60	56.531	30.314	26.217
50	E22C	E22D	0									***0.945***		0.945	0.475	0.470
36	E22A	E22B E22E E22F	1 50									*7.417*	1.77	6.592	2.308	4.284
28	E22G		2 37,36									2.242	1.26	64.105	40.196	23.909
32	E23A	E23B E23C E23D	0									***4.696***		4.696	4.695	0.001
31	E23E		0									**0.666**		0.666	0.666	0.000
29	E23F		2 32,31									1.610	0.56	6.412	4.215	2.197
30	E23G	E23H E23J	1 29									***2.716***		9.128	6.931	2.197
27	E23K		2 28,30									1.947	0.84	74.340	39.666	34.674
25	E24A		0									**0.510**		0.510	0.510	0.000
26	E24B		1 25									2.694	0.49	2.714	1.445	1.269
21	E24C	E24D	0									***5.575***		5.575	5.576	-0.001
22	E24E	E24F E24G	0									***5.902***		5.902	5.902	0.000
20	E24H		4 27,26,21,2									2.939	2.00	89.470	63.240	26.230
19	E24J		1 20									2.322	1.61	90.182	66.085	24.097
16	E24K		1 19									**1.393**		91.575	67.805	23.770
12	E40A	E40B	0									***7.714***		7.714	4.405	3.309
11	E40C		1 12									3.048	1.38	9.382	4.345	5.037
17	E40D		1 11									3.128	1.33	11.180	5.430	5.750
15	E24L		2 16,17									**1.052**	2.01	101.797	62.376	39.421
14	E24M		1 15									3.117	1.77	103.144	77.744	25.400
47	E10A		0									**17.931**		17.931	17.931	0.000
44	E10B		1 47									25.925	0.11	43.746	20.175	23.571
42	E10C		1 44									20.276	0.21	63.812	28.418	35.394
40	E10D		1 42									19.415	0.28	82.947	62.013	20.934
33	E10E	E10F	1 40									*43.160*	0.77	125.337	94.296	31.041
24	E10H		0									***4.874***		4.874	4.874	0.000
23	E10G	E10J	2 33,24									*42.552*	2.16	170.603	132.157	38.446
13	E10K		1 23									2.887	0.73	172.760	134.213	38.547
4	E32A	E32B E32C	0									***1.634***		1.634	1.634	0.000
2	E31B	E31C E31D E31E	0									***0.495***		0.495	0.494	0.001
1	E31G		0									**0.089**		0.089	0.089	0.000
3	E31F	E31H E32E	3 4,2,1									*1.418*	0.20	3.436	2.786	0.650
5	E33A	E33B	1 3									*0.320*	0.05	3.706	2.354	1.352
8	E33C	E33D E33E	1 5									*1.230*	0.10	4.836	1.691	3.145
9	E33F	E33G	2 14,13									*1.762*	1.30	276.366	124.883	151.483
7	E33H		2 8,9									0.243	0.34	281.105	128.079	153.026
Est	E33H		1 7									0.084		281.189	597.000	-315.811

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Scenario 4: Conservation Targets & ESB Configuration: Sandveld & F60 catchment

	F60A		0				**0.035**		0.035	0.035	0.000
58	F60D	F60C F60B	0				**0.215**	0.20	0.015	0.216	-0.201
	F60E		0				***0.006***		0.006	0.006	0.000
51	G30A		0				*1.922*		1.922	1.922	0.000
55	G30B		0				*5.654*		5.654	5.654	0.000
54	G30C		0				*6.081*		6.081	6.081	0.000
53	G30D		2 54,55				*5.112*	0.55	16.297	9.706	6.591
52	G30E		1 53				**0.874**	0.74	16.431	11.077	5.354
56	G30F		0				***1.649***		1.649	1.649	0.000
57	G30G		0				***0.659***		0.659	0.659	0.000
	G30H		0				***0.875***		0.875	0.875	0.000

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Scenario 5: Conservation Targets & PES Configuration

Olifants catchment

Node	Quaternary Single	Quaternary Multiple	Directly linked nodes	Ecol Category (Node) D C B A/B	PES	IncremFlow Category D C B A/B	Increm input	Channel evap	Cumul flow	EWR at node	Balance
48	E21A		0		E/F		**5.096**		5.096	5.096	0.000
49	E21B		0		D		**0.138**		0.138	0.138	0.000
46	E21C		2 49,48		C		0.416	0.18	5.470	8.168	-2.698
45	E21D		0		D		**6.490**		6.490	6.490	0.000
43	E21E		2 46,45		B		0.523	0.40	12.083	27.314	-15.231
39	E21F		1 43		AB		0.739	0.71	12.112	38.635	-26.523
41	E21G		0		D		**7.139**		7.139	7.139	0.000
38	E21H	E21J	1 41		AB		*30.835*	0.15	37.824	56.606	-18.782
37	E21K	E21L	2 38,39		B		*0.937*	0.60	50.273	69.645	-19.372
50	E22C	E22D	0		B		***1.413***		1.413	0.711	0.702
36	E22A	E22B E22E E22F	1 50		B		*9.115*	1.77	8.758	5.427	3.331
28	E22G		2 37,36		B		2.242	1.26	60.013	121.620	-61.607
32	E23A	E23B E23C E23D	0		AB		***8.629***		8.629	8.630	-0.001
31	E23E		0		B		**1.562**		1.562	1.562	0.000
29	E23F		2 32,31		B		1.610	0.56	11.241	9.895	1.346
30	E23G	E23H E23J	1 29		B		**6.376**		17.617	16.272	1.345
27	E23K		2 28,30		B		1.947	0.84	78.737	92.254	-13.518
25	E24A		0		B		**1.197**		1.197	1.197	0.000
26	E24B		1 25		B		2.694	0.49	3.401	3.390	0.011
21	E24C	E24D	0		C		**5.575**		5.575	5.576	-0.001
22	E24E	E24F E24G	0		B		***8.826***		8.826	8.826	0.000
20	E24H		4 27,26,21,2		B		2.939	2.00	97.478	191.933	-94.455
19	E24J		1 20		B		6.562	1.61	102.430	200.591	-98.161
16	E24K		1 19		AB		**3.957**		106.387	266.426	-160.039
12	E40A	E40B	0		C		***5.159***		5.159	2.946	2.213
11	E40C		1 12		D		3.048	1.38	6.827	4.345	2.482
17	E40D		1 11		B		3.128	1.33	8.625	12.741	-4.116
15	E24L		2 16,17		B		**2.460**	2.01	115.462	144.163	-28.701
14	E24M		1 15		B		3.117	1.77	116.809	236.079	-119.270
47	E10A		0		C		**12.064**		12.064	12.061	0.003
44	E10B		1 47		B		25.925	0.11	37.879	47.241	-9.362
42	E10C		1 44		B		*20.276*	0.21	57.945	66.772	-8.827
40	E10D		1 42		C		19.415	0.28	77.080	71.530	5.550
33	E10E	E10F	1 40		C		***43.160***	0.77	119.470	108.881	10.589
24	E10H		0		D		**4.874**		4.874	4.874	0.000
23	E10G	E10J	2 33,24		D		*42.552*	2.16	164.736	132.157	32.579
13	E10K		1 23		D		2.887	0.73	166.893	134.213	32.680
4	E32A	E32B E32C	0		B		***2.444***		2.444	2.444	0.000
2	E31B	E31C E31D E31E	0		B		***0.739***		0.739	0.739	0.000
1	E31G		0		B		**0.209**		0.209	0.209	0.000
3	E31F	E31H E32E	3 4,2,1		B		***1.418***	0.20	4.610	6.553	-1.943
5	E33A	E33B	1 3		B		*0.320*	0.05	4.880	5.536	-0.656
8	E33C	E33D E33E	1 5		C		*1.230*	0.10	6.010	1.691	4.319
9	E33F	E33G	2 14,13		D		*1.762*	1.30	284.164	124.883	159.281
7	E33H		2 8,9		D		0.243	0.34	290.077	128.079	161.998
Est	E33H		1 7		C		0.084		290.161	597.000	-306.839

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Scenario 5: Conservation Targets & PES Configuration: Sandveld & F60 catchment

	F60A		0		**0.053**		0.053	0.053	0.000
58	F60D	F60C F60B	0		**0.215**	0.20	0.015	0.216	-0.201
	F60E		0		***0.014***		0.014	0.014	0.000
51	G30A		0		*1.922*		1.922	1.922	0.000
55	G30B		0		*5.654*		5.654	5.654	0.000
54	G30C		0		*6.081*		6.081	6.081	0.000
53	G30D		2 54,55		*5.112*	0.55	16.297	9.706	6.591
52	G30E		1 53		**0.874**	0.74	16.431	11.077	5.354
56	G30F		0		***2.553***		2.553	2.553	0.000
57	G30G		0		***1.021***		1.021	1.021	0.000
	G30H		0		***1.349***		1.349	1.349	0.000

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Ecologically Feasible Configuration

Olifants catchment

Node	Quaternary Single	Quaternary Multiple	Directly linked nodes	Ecol Category (Node) D C B A/B	PES	IncremFlow Category D C B A/B	Increm input	Channel evap	Cumul flow	EWR at node	Balance
48	E21A		0		E/F		**5.096**		5.096	5.096	0.000
49	E21B		0		D		**0.138**		0.138	0.138	0.000
46	E21C		2 49,48		C		0.416	0.18	5.470	8.168	-2.698
45	E21D		0		D		**6.490**		6.490	6.490	0.000
43	E21E		2 46,45		B		0.523	0.40	12.083	18.359	-6.276
39	E21F		1 43		AB		0.739	0.71	12.112	20.821	-8.709
41	E21G		0		D		**7.139**		7.139	7.139	0.000
38	E21H	E21J	1 41		AB		*30.835*	0.15	37.824	30.502	7.322
37	E21K	E21L	2 38,39		B		*0.937*	0.60	50.273	46.812	3.461
50	E22C	E22D	0		B		***1.413***		1.413	0.711	0.702
36	E22A	E22B E22E E22F	1 50		B		*9.115*	1.77	8.758	5.427	3.331
28	E22G		2 37,36		B		2.242	1.26	60.013	47.204	12.809
32	E23A	E23B E23C E23D	0		AB		***4.696***		4.696	4.695	0.001
31	E23E		0		B		**1.045**		1.045	1.045	0.000
29	E23F		2 32,31		B		1.610	0.56	6.791	6.616	0.175
30	E23G	E23H E23J	1 29		B		***4.265***		11.056	10.880	0.176
27	E23K		2 28,30		B		1.947	0.84	72.176	61.812	10.364
25	E24A		0		B		**0.801**		0.801	0.801	0.000
26	E24B		1 25		B		2.694	0.49	3.005	2.267	0.738
21	E24C	E24D	0		C		**5.575**		5.575	5.576	-0.001
22	E24E	E24F E24G	0		B		***8.826***		8.826	8.826	0.000
20	E24H		4 27,26,21,22		B		2.939	2.00	90.521	74.662	15.859
19	E24J		1 20		B		6.562	1.61	95.473	78.017	17.456
16	E24K		1 19		AB		**2.167**		97.640	80.046	17.594
12	E40A	E40B	0		C		**5.159**		5.159	2.946	2.213
11	E40C		1 12		D		3.048	1.38	6.827	4.345	2.482
17	E40D		1 11		B		3.128	1.33	8.625	5.430	3.195
15	E24L		2 16,17		B		**1.646**	2.01	105.901	96.754	9.147
14	E24M		1 15		B		3.117	1.77	107.248	91.768	15.480
47	E10A		0		C		**7.834**		7.834	7.834	0.000
44	E10B		1 47		B		25.925	0.11	33.649	28.071	5.578
42	E10C		1 44		B		20.276	0.21	53.715	39.678	14.037
40	E10D		1 42		C		19.415	0.28	72.850	71.530	1.320
33	E10E	E10F	1 40		C		*43.160*	0.77	115.240	94.296	20.944
24	E10H		0		D		**4.874**		4.874	4.874	0.000
23	E10G	E10J	2 33,24		D		*42.552*	2.16	160.506	132.157	28.349
13	E10K		1 23		D		2.887	0.73	162.663	134.213	28.450
4	E32A	E32B E32C	0		B		***1.634***		1.634	1.634	0.000
2	E31B	E31C E31D E31E	0		B		***0.495***		0.495	0.494	0.001
1	E31G		0		B		**0.140**		0.140	0.140	0.000
3	E31F	E31H E32E	3 4,2,1		B		*1.418*	0.20	3.487	2.786	0.701
5	E33A	E33B	1 3		B		*0.320*	0.05	3.757	3.702	0.055
8	E33C	E33D E33E	1 5		C		*1.230*	0.10	4.887	2.656	2.231
9	E33F	E33G	2 14,13		D		*1.762*	1.30	270.373	124.883	145.490
7	E33H		2 8,9		D		0.243	0.34	275.163	128.079	147.084
Est	E33H		1 7		C		0.084		275.247	597.000	-321.753

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Ecologically Feasible Configuration:
Sandveld & F60 catchment

	F60A			0		C		**0.035**		0.035	0.035	0.000
58	F60D	F60C	F60B	0		C		**0.215**	0.20	0.015	0.216	-0.201
	F60E			0		C		***0.009***		0.009	0.009	0.000
51	G30A			0		C		*1.922*		1.922	1.922	0.000
55	G30B			0		C		*3.113*		3.113	3.113	0.000
54	G30C			0		C		*3.720*		3.720	3.720	0.000
53	G30D			2 54,55		C		*5.112*	0.55	11.395	9.706	1.689
52	G30E			1 53		C		**0.874**	0.74	11.529	11.077	0.452
56	G30F			0		C		***1.649***		1.649	1.649	0.000
57	G30G			0		C		***0.659***		0.659	0.659	0.000
	G30H			0		C		***0.875***		0.875	0.875	0.000

water affairs
Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA