



water affairs

Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

RESOURCE QUALITY OBJECTIVES: BIOTA, HABITAT AND FLOW RQOs

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Rivers for Africa

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RESOURCE QUALITY OBJECTIVES



1: Delineate units of analysis and describe the status quo



2: Initiation of stakeholder process and catchment visioning



3: Quantify EWRs and changes in Ecosystem Services



4: Identification and evaluation of scenarios within IWRM



5: Draft Management Classes



6: Resource Quality Objectives (EcoSpecs & water quality (user))



7: Gazette class configuration



RQOs: Where does it fit in?

DEVELOP DRAFT RQOS: NARRATIVE

Determine the present state for selected sub-components and indicators

Task 1 & 3 PES Baseline



DEVELOP DRAFT RQOS: NARRATIVE

Determine the level at which to set RQOs

REC and MC

Site	PES	REC	Rec Sc
EWR 1	C	C	C/D
EWR 3	C	B/C	C
EWR 4	C	B/C	C
EWR 7	C	B	C
EWR 2	D	D	D
EWR 5	C	C	C/D

Desktop biophysical nodes: REC

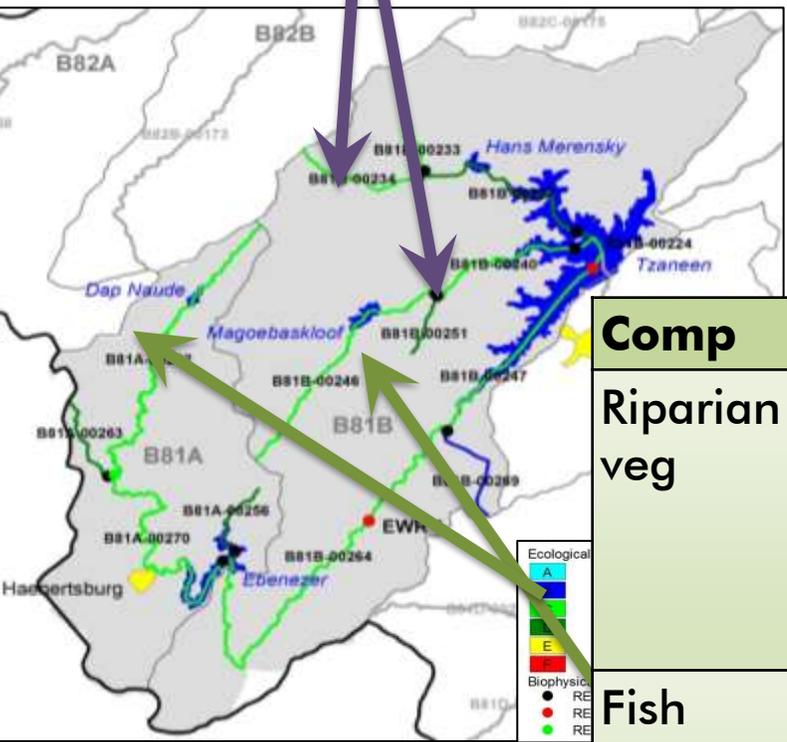
(Four nodes where REC requires improvement of PES.
One node will not be possible (farm dams))

IUA 1: Letaba US Tzaneen Dam

Low & moderate priority RUs: Flow, habitat and biota RQOs

SQ (RU) (Low)	Habitat RQO	Flow RQO (% nMAR)
B81B-234	B	29%
B81B-251	B	35%

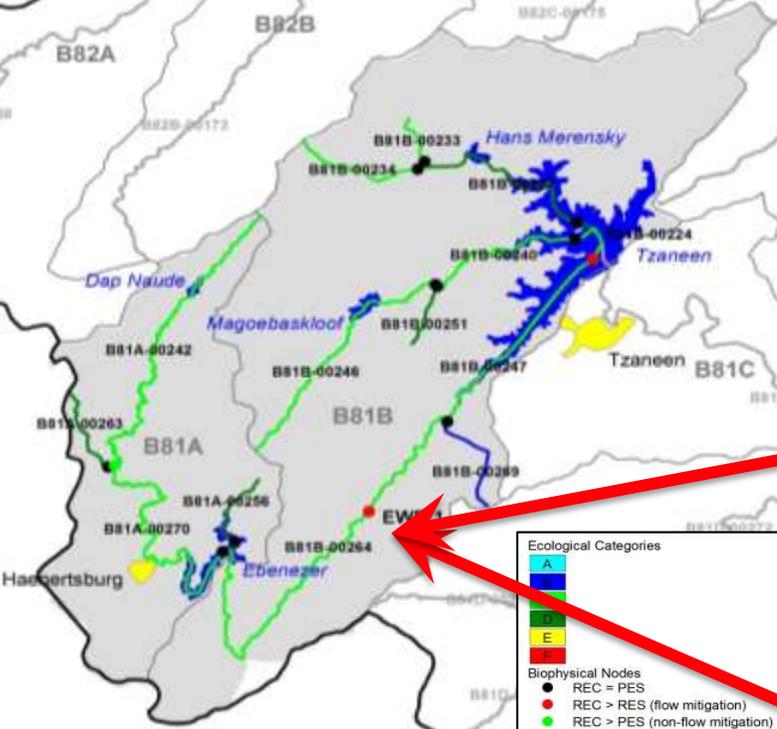
SQ (RU)	REC	Flow RQO	SQ (RU)	REC	Flow RQO
B81A-242	B	22	B81B-233	C	27
B81A-256	D	22	B81B-246	C	18
B81A-263	D	22	B81B-269	B	35
B81A-270	C	27	B81B-227	D	22
			B81B-240	C	19



Comp	Narrative RQO
Riparian veg	No Encroachment of forestry in rip zone. Alien sp aerial cover to conform to EC. Longitudinal fragmentation should not increase. Natal ghost frog, mountain wagtail, half collared kingfisher, population (sensitive) must be maintained
Fish	Maintain PES, sp richness, Suitable flow for primary indicators (AURA, CPRE, BNEE, LMOL, BMAR). Trout not to spread and to be removed if possible
Inverts	Maintain suitable velocities in SIC and marginal vegetation for indicator sp

RU EWR 1 (LETABA)

High priority RU: Flow, habitat & biota RQOs



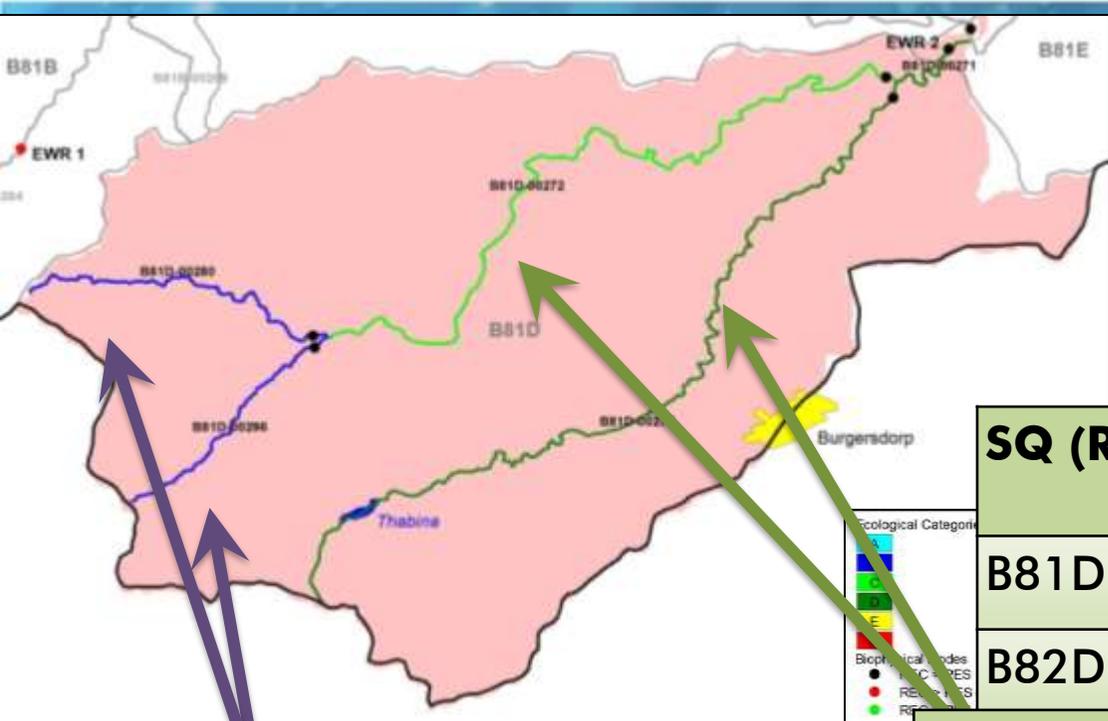
FLOW RQO (%nMAR)		Oct (m ³ /s)	
Low EWR	Total EWR	drought	60 th %
10.8	20	0.12	0.16

EcoStatus **C**

Comp	PES, REC, Sc 11	Narrative RQO
Geomorph	C/D	Maintain the current EC and geomorphological structure
Fish	C	Do not reduce current 22 sp. Indicator of fast flowing habitats is the stargazer.
Inverts	C	Community representative of small foothill stream assemblage. Maintain the C, good SIC and marg veg.
Veg	C	Maintain C. Keep aliens in check. Maintain viable populations of matumi, leadwood, apple leaf

IUA 2: LETSITELE

Low & moderate priority RUs: Flow, habitat and biota RQOs

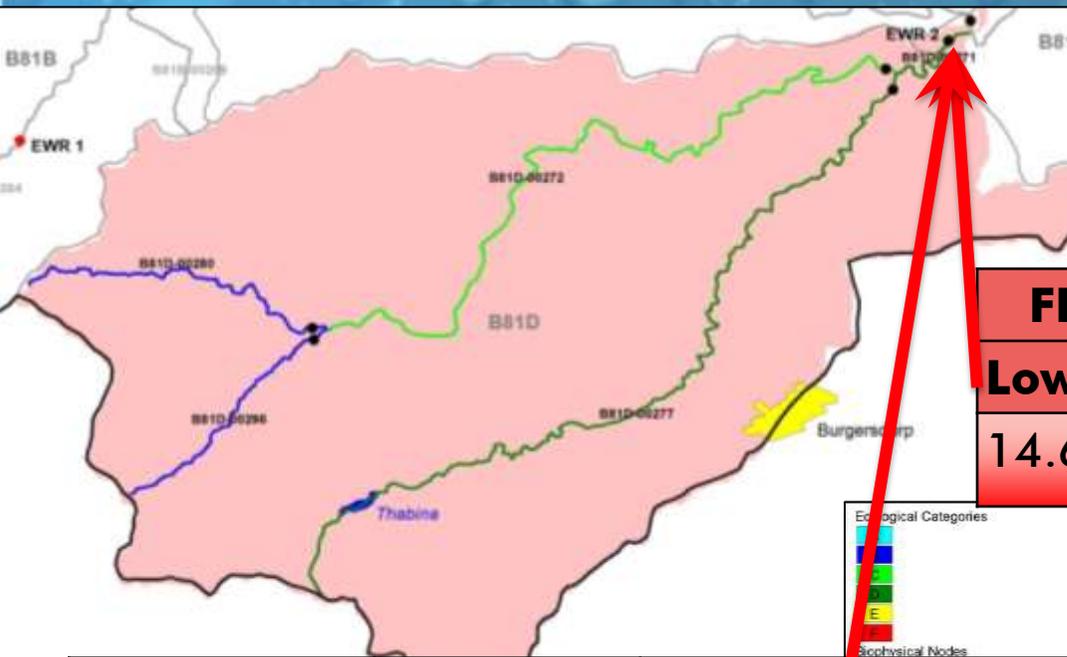


SQ (RU)	Habitat RQO	Flow RQO (% nMAR)
B81D-277	C	18.4
B82D-272	C	22

SQ (RU)	Habitat RQO	Flow RQO (% nMAR)
B81D-280	B	29%
B81D-296	B	35%

Comp	Narrative RQO
Riparian veg	Perennial alien sp aerial cover must confirm to EC. No Encroachment of agric in rip zone. Veg cover on banks to be maintained to prevent erosion
Fish	Maintain PES, sp richness, Suitable flow for primary indicators (AURA, CPRE)
Inverts	Maintain suitable velocities in SIC and marginal vegetation for indicator sp

RU EWR 2 (Letsitele) High priority RU: Flow, habitat & biota RQOs



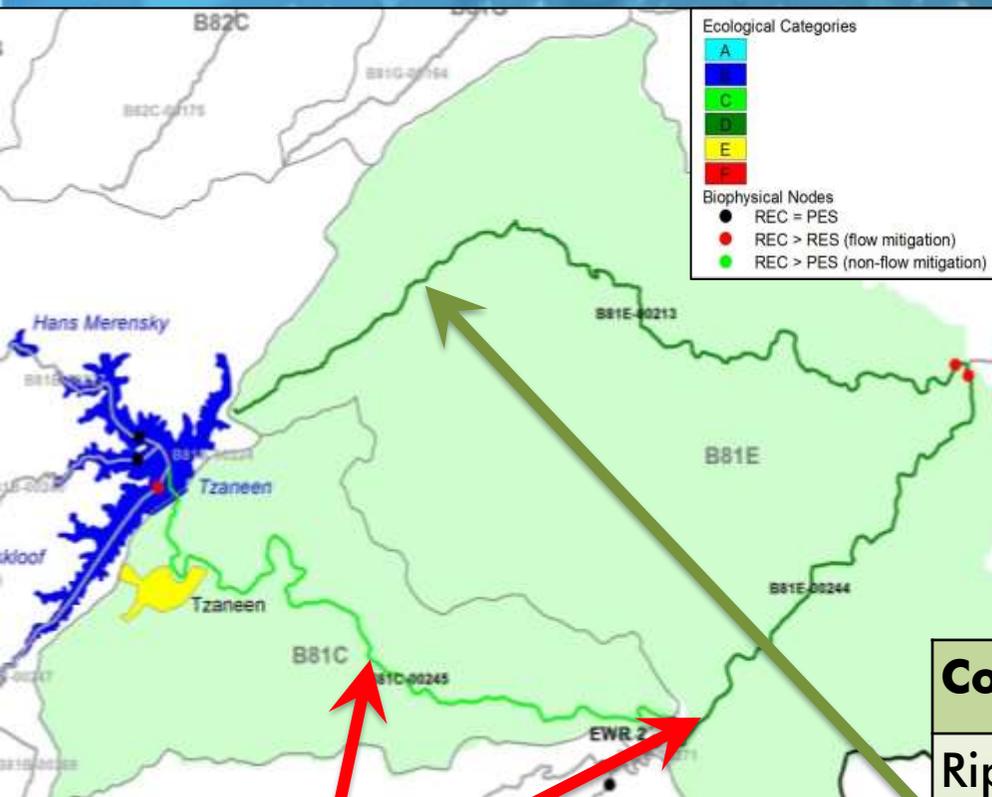
FLOW RQO (%nMAR)		Sep (m ³ /s)	
Low EWR	Total EWR	drought	60 th %
14.6	22	0.07	0.1

EcoStatus **D**

Comp	PES, REC, Sc 11	Narrative RQO
Geomorph	D	Maintain the current EC and geomorphological structure
Fish	C/D	Do not reduce current 24 sp. Indicator of fast flowing habitats is the stargazer.
Inverts	C	Community representative of small foothill stream assemblage. Maintain the C good SIC and marg veg.
Veg	D	Maintain C. Keep aliens in check. Maintain viable populations of matumi, leadwood, apple leaf

IUA 3: Letaba us of Nwamitwa Dam

Moderate and high priority RUs: Flow, habitat and biota RQOs



SQ (RU)	Habitat RQO	Flow RQO (% nMAR)
B81E-213	C	8.1

Comp	Narrative RQO
Riparian veg	Perennial alien sp aerial cover must confirm to EC. No Encroachment of agric in rip zone.
Fish	Maintain PES, sp richness, Suitable flow for primary indicators BMAR
Inverts	Maintain moderate velocities in SIC habitat and suitable wq for key taxa

B81C-245	Part of RU EWR 3 (IUA 4)
B81E-244	

RU EWR 3 (IUA 4) (Letaba): High priority RU: Flow, habitat & biota RQOs



FLOW RQO (%nMAR)	Oct (m ³ /s)	
	drought	60 th %
43.9	1.09	1.22

	PES	REC	Sc 11
EcoStatus	C	B/C	C

Comp	PES	REC	Sc 11	Narrative RQO
Geomorph	D	C/D	D	Maintain the current EC and geomorphological structure
Fish	C	B/C	C	Do not reduce current 30 sp. Indicator of fast flowing habitats is the Shortspine suckermouth.
Inverts	C	B/C	C	Community representative of Lowveld river in the middle with seasonal traits. Maintain the C diversity and integrity.
Veg	C/D	C	C	Maintain C. Keep aliens in check. Maintain viable populations of matumi, leadwood, apple leaf

RU EWR 4 (IUA 4) (Letaba): High priority RU: Flow, habitat & biota RQOs

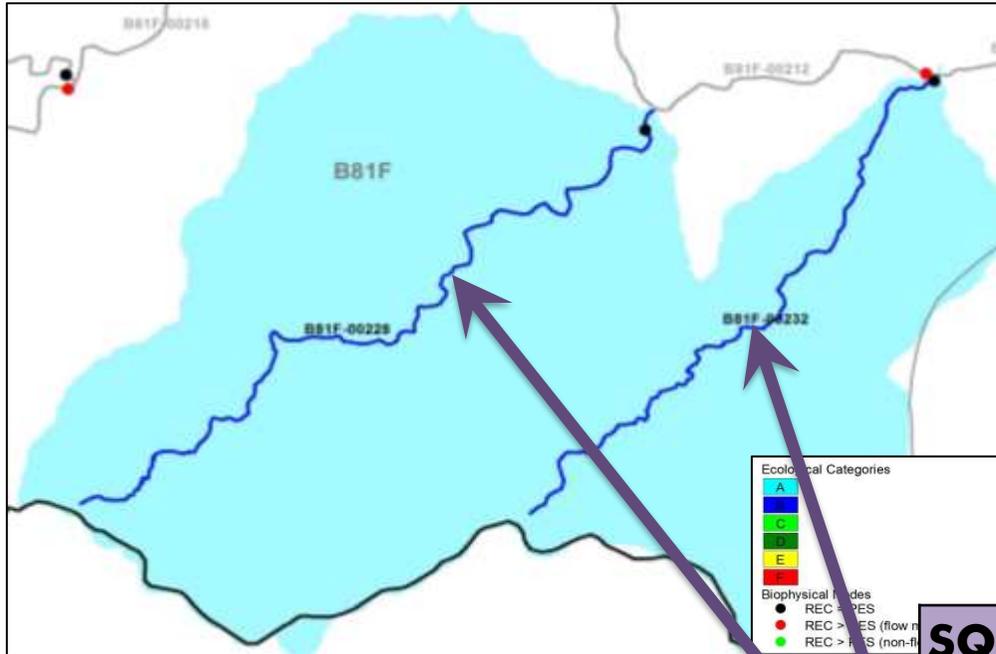


FLOW RQO (%nMAR)	Oct (m ³ /s)	
	drought	60 th %
42.43	0.5	0.6

	PES	REC	Sc 11
EcoStatus	C	B/C	C

Comp	PES	REC	Sc 11	Narrative RQO
Geomorph	C/D	C	D	Maintain the geomorphological characteristics associated with a D
Fish	C	B/C	C	Do not reduce current 26 sp. Indicator of fast flowing habitats is the Shortspine suckermouth.
Inverts	C	B	C/D	Community representative of alluvial Lowveld river. Maintain the C/D diversity and integrity.
Veg	C	B/C	C	Maintain C. Keep aliens in check. Maintain viable populations of matumi, leadwood, apple leaf

IUA 5: Southern Letaba tribs: Low priority RUs: Flow, habitat and biota RQOs



SQ (RU)	Habitat RQO	Flow RQO (% nMAR)
B81F-228	B	9.1%
B81F-232	B	13.5%

IUA 6: Northern tribs to Letaba: **Low & moderate** priority RUs: Flow, habitat and biota RQOs

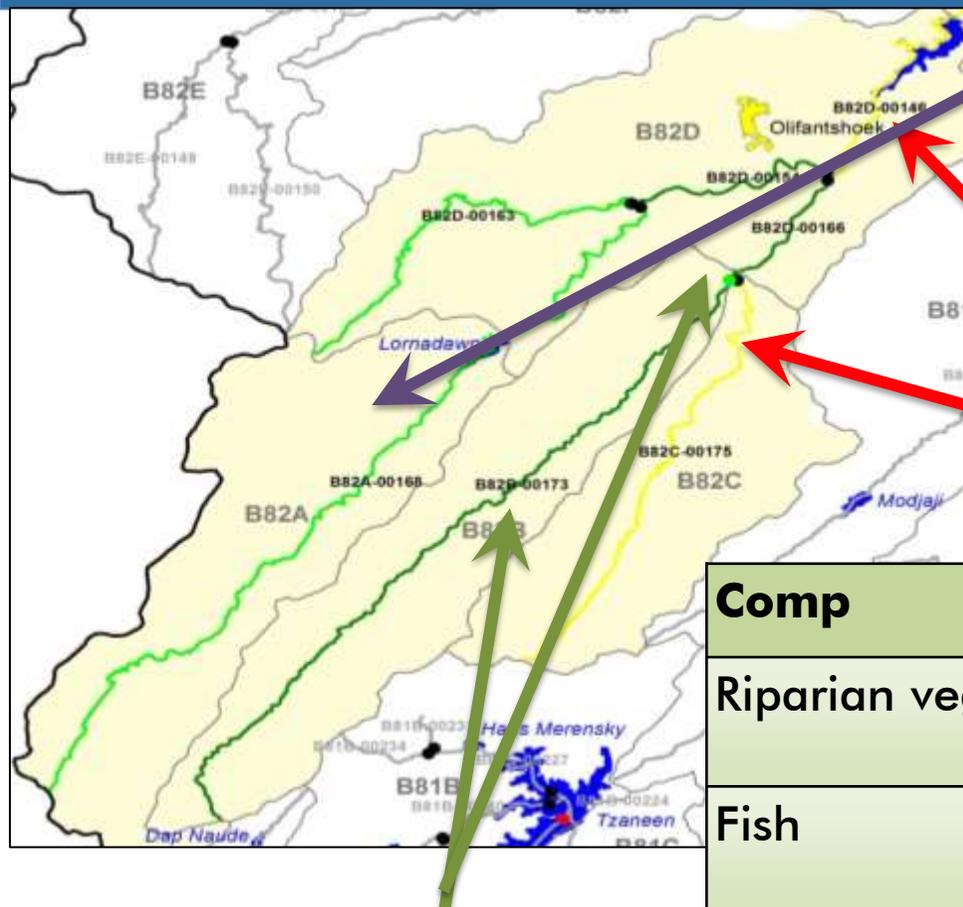


SQ (RU)	Habitat RQO	Flow RQO (% nMAR)
B81F-189	C	7.1
B81F-203	C	8.8
B81G-164	D	6.6
B81H-162	C	10.4
B81J-187	B	11

SQ (RU)	Habitat RQO	Flow RQO (% nMAR)
B81H-171 (Molototsi)	C	8.1

Comp	Narrative RQO
Riparian veg	Vegetative cover along riparian zone banks should be maintained in order to provide bank stability and prevent erosion.

IUA 7: Upper Middle Letaba and tribs: **Low & moderate** priority RUs: Flow, habitat and biota RQOs



SQ (RU)	Habitat RQO	Flow RQO
B82A-168	C	24.3%
B82D-163	C	25.8%
B82D-154	D	17.3 %

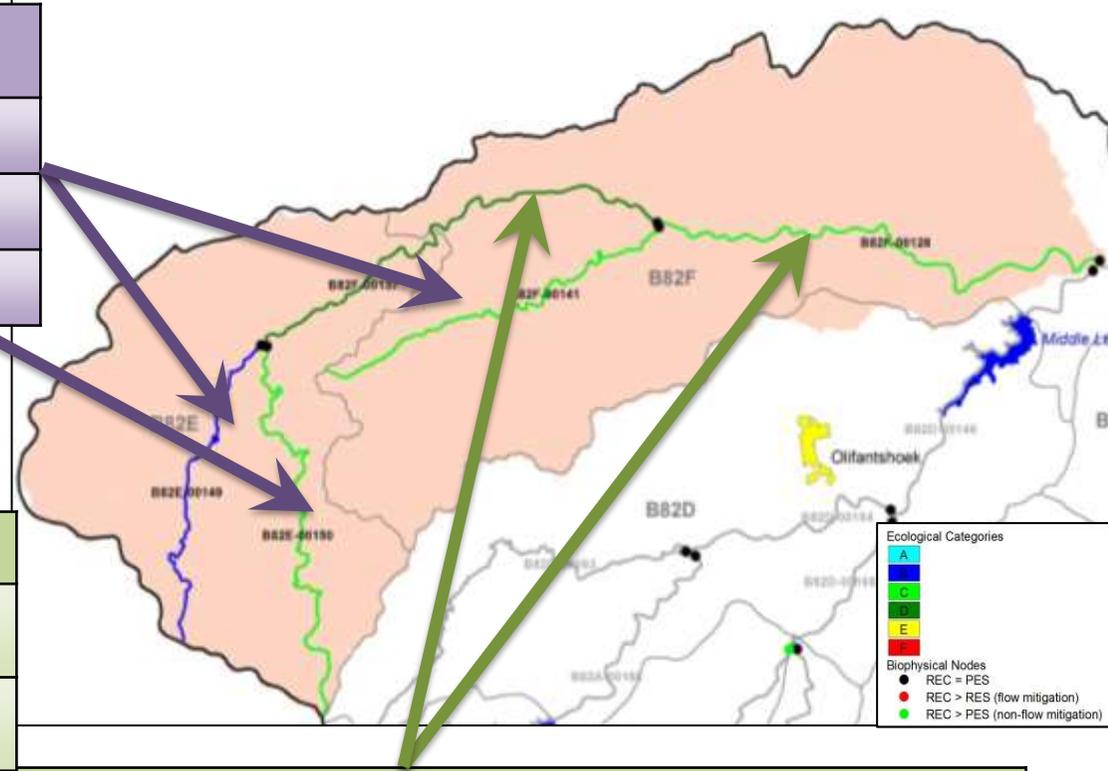
B82C-175
B82D-146 Water quality and inundation issues

Comp	Narrative RQO
Riparian veg	No encroachment of agric in rip zone. Veg cover maintained to prevent erosion
Fish	Maintain PES, sp richness, Suitable flow for primary indicators BVIV and BTOP

SQ (RU)	Habitat RQO	Flow RQ
B82B-173	D	2.85%
B82D-166	D	10.2%

IUA 8: Klein Letaba us from dam: Low & moderate priority RUs: Flow, habitat and biota RQOs

SQ (RU)	Habitat RQO	Flow RQO
B82E-149	B	13.3%
B82E-150	C	16%
B82F-141	C	12.8 %

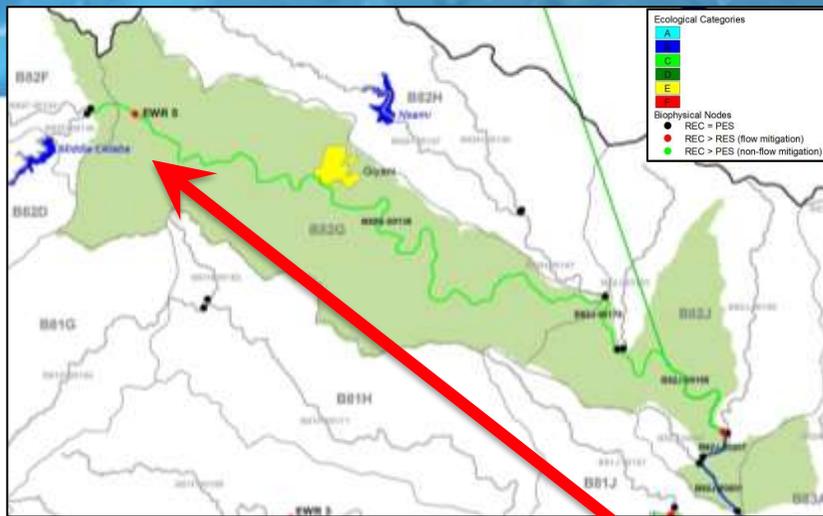


SQ (RU)	Habitat RQO	Flow RQ
B82F-128	C	15.4
B82F-137	D	9.7

Comp	Narrative RQO
Riparian veg	Agric should not encroach Rip zone fragmentation should not increase Veg cover on banks must be maintained for bank stability and to prevent erosion.
Fish (B82F-128)	Maintain PES, sp richness, Suitable flow for primary indicators (BMAR)

IUA 9 (RU EWR 5) (Klein Letaba)

High priority RU: Flow, habitat & biota RQOs

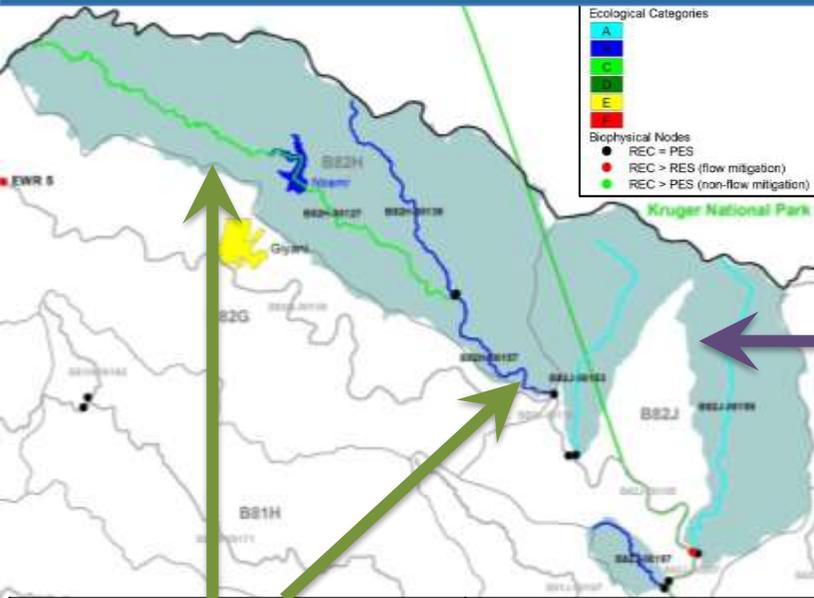


FLOW RQO (%nMAR)	Oct (m ³ /s)	
	drought	60 th %
45	0.015	0.03

EcoStatus	REC C	Sc 11 C/D
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Comp	PES, REC	Sc 11	Narrative RQO
Geomorph	C/D	D	Maintain geomorphological features associated with a D
Fish	C	C	Do not reduce current 23 sp. Indicator of fast flowing habitats is the sawfin suckermouth.
Inverts	C/D	D	Community representative of Lowveld river assemblage with seasonal traits (for a D)
Veg	C	C/D	Maintain C. Keep aliens in check. Agricultural activities should not encroach. Maintain viable populations of matumi, leadwood, apple leaf

IUA 10: Northern tribs to Letaba: **Low & moderate** priority RUs: Flow, habitat and biota RQOs



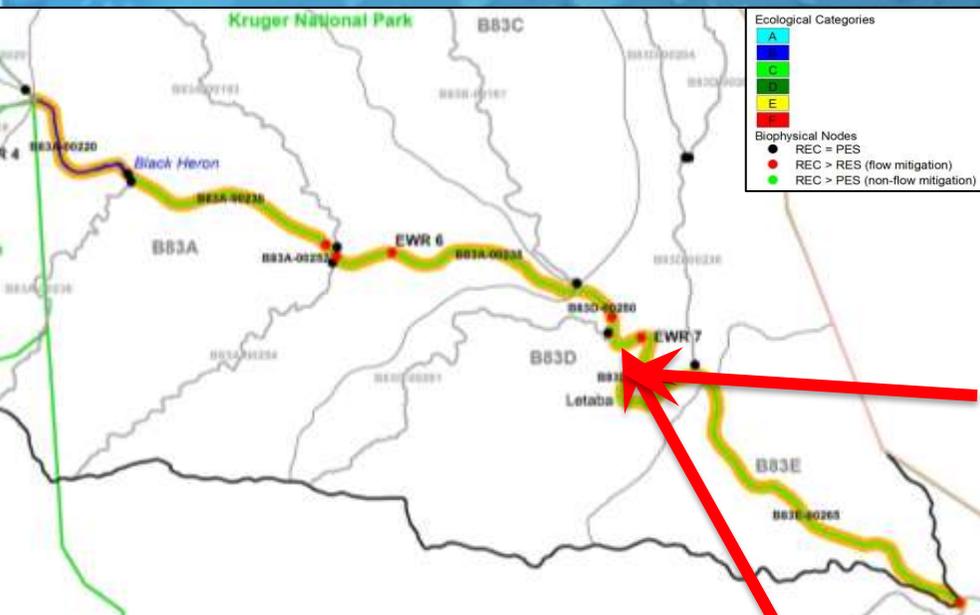
SQ (RU)	Habitat RQO	Flow RQO (% nMAR)
B82H-139	B	15
B82J-153	A	
B82J-159	A	

SQ (RU)	Habitat RQO	Flow RQO (% nMAR)
B81H-127	C	10.6
B82H-157	B	14.4

Comp	Narrative RQO
Riparian	<p>Agric should not encroach</p> <p>Rip zone fragmentation should not increase</p> <p>Veg cover on banks must be maintained for bank stability and to prevent erosion.</p>

IUA 11 (RU EWR 7) (Letaba)

High priority RU: Flow, habitat & biota RQOs

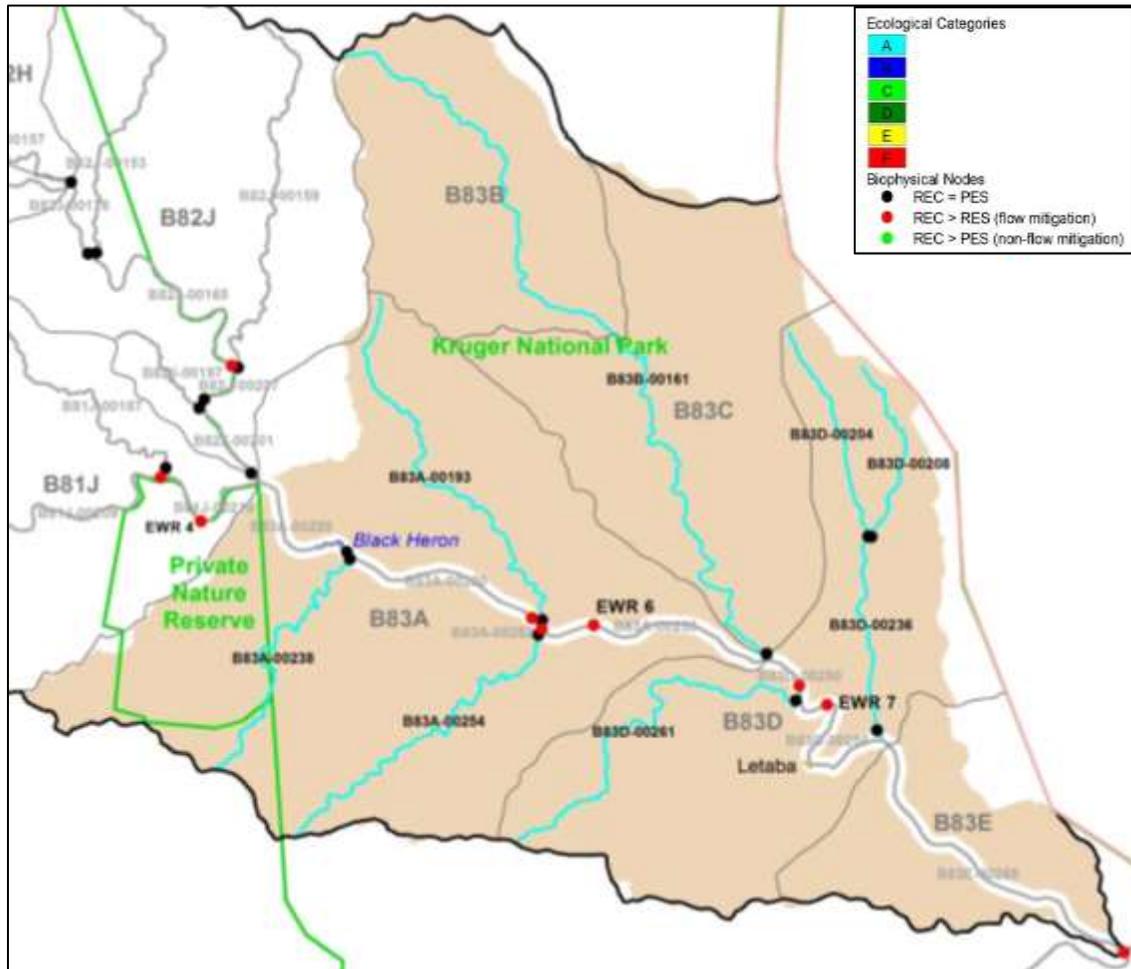


FLOW RQO (%nMAR)		Sep (m ³ /s)	
%nMAR	%pMAR	drought	60 th %
49	89	0.52	0.55

EcoStatus	C	C
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Comp	PES	Sc 11	Narrative RQO
Geomorph	C	C	Maintain the current EC and geomorphological structure
Fish	C	C/D	Do not reduce current 29 sp. Maintain present FROC for a C and, once Sc 11 is implemented, the FROC for a C/D. Indicator of fast flowing habitats is the sawfin suckermouth and largescale yellowfish.
Inverts	C	C/D	Community representative of a Lowveld River assemblage. Maintain rare SIC habitat and marg veg.
Veg	C	C	Maintain C. Keep aliens in check. Maintain viable populations of matumi, leadwood, apple leaf, torch wood

IUA12: Letaba tribs in KNP: Low priority RUs: Flow, habitat and biota RQOs



SQ (RU)	Rivers	Habitat RQO
B83A-00193	Shipikani	A
B83A-00238	Nharhweni	A
B83A-00254	Ngwenyeni	A
B83B-00161	Tsende	B
B83D-00204	Manyeleti	A
B83D-00208	Makhadzi	A
B83D-00261	Nwanedzi	A
B83D-00236	Makhadzi	A

QUESTIONS FOR CLARIFICATION