NON-ECOLOGICAL WATER QUALITY: RQOs

Presented by:
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Scherman Colloty & Associates

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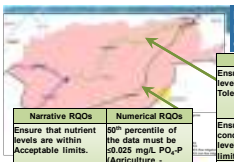
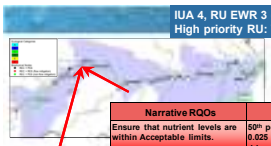
IUA 2: LETSITELE + THABINA
Moderate priority RUs: Water quality RQOs



Narrative RQOs	Numerical RQOs
Ensure that nutrient levels are within Tolerable limits.	50th percentile of the data must be ≤ 0.025 mg/L PO_4-P (Agriculture - irrigation: driver)
Ensure that electrical conductivity (salt) levels are within Ideal limits.	75th percentile of the data must be ≤ 30 mS/m (Aquatic ecosystems: driver)
Ensure that toxics are within Ideal limits or A categories.	75th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996b) and DWAF (2008)
Ensure water quality state maintains biotic requirements as specified by RQOs for biota.	See specified biota requirements

IUA 4, RU EWR 3 (LETABA)
High priority RU: Water quality RQOs



EcoSpec + TPC tables for ecological requirements

Narrative RQOs	Numerical RQOs
Ensure that nutrient levels are within Acceptable limits.	50th percentile of the data must be ≤ 0.025 mg/L PO_4-P (Aquatic ecosystems: driver)
Ensure that electrical conductivity (salt) levels are within Ideal limits.	75th percentile of the data must be less than or equal to 30 mS/m (Industrial Cat 3: driver)
Ensure that pH levels stay within Ideal limits.	5th and 95th percentiles of pH data must be between 6.5 and 8.0 (Aquatic ecosystems: driver)
Ensure that toxics are within Ideal limits or A categories.	75th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996b) and DWAF (2008)
Ensure water quality state maintains biotic requirements as specified by RQOs for biota.	See specified biota requirements

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

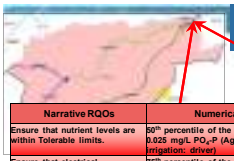
5: Draft Management Classes

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

7: Gazette class configuration

RQOs: Where do they fit in?

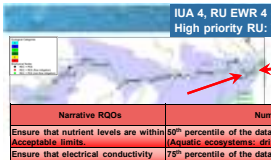
IUA 2, RU EWR 2 (LETSITELE)
High priority RU: Water quality RQOs



EcoSpec + TPC tables for ecological requirements

Narrative RQOs	Numerical RQOs
Ensure that nutrient levels are within Tolerable limits.	50th percentile of the data must be ≤ 0.025 mg/L PO_4-P (Agriculture - irrigation: driver)
Ensure that electrical conductivity (salt) levels are within Ideal limits.	75th percentile of the data must be less than or equal to 30 mS/m (Aquatic ecosystems: driver)
Meet faecal coliform targets for recreational (full contact) use	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996a)
Ensure that toxics are within Ideal limits or A categories.	75th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996b) and DWAF (2008)
Ensure water quality state maintains biotic requirements as specified by RQOs for biota.	See specified biota requirements

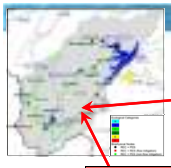
IUA 4, RU EWR 4 (LETABA)
High priority RU: Water quality RQOs



EcoSpec + TPC tables for ecological requirements

Narrative RQOs	Numerical RQOs
Ensure that nutrient levels are within Acceptable limits.	50th percentile of the data must be ≤0.025 mg/L PO_4-P (Aquatic ecosystems: driver)
Ensure that electrical conductivity (salt) levels are within Ideal limits.	75th percentile of the data must be less than or equal to 30 mS/m (Industrial Cat 3: driver)
Ensure that pH levels stay within Acceptable limits.	5th and 95th percentiles of pH data must be between 6.5 and 8.4 (Industrial Cat 3: driver)
Ensure that turbidity or clarity levels stay within Acceptable limits.	A moderate change from present with temporary high sediment loads + turbidity during runoff events. (Aquatic ecosystems: driver)
Ensure that toxics are within Ideal limits or A categories.	75th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996b) and DWAF (2008)
Ensure water quality state maintains biotic requirements as specified by RQOs for biota.	See specified biota requirements

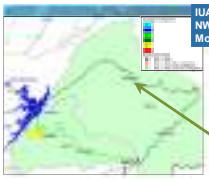
IUA 1, RU EWR 1 (LETABA)
High priority RU: Water quality RQOs



EcoSpec + TPC tables for ecological requirements

Narrative RQOs	Numerical RQOs
Ensure that nutrient levels are within Acceptable limits.	50th percentile of the data must be ≤ 0.015 mg/L PO_4-P (Aquatic ecosystem: driver)
Ensure water quality state maintains biotic requirements as specified by RQOs for biota.	See specified biota requirements

IUA 3: LETABA UPSTREAM OF NWAMITWA DAM
Moderate priority RU: Water quality RQOs



Narrative RQOs	Numerical RQOs
Ensure that nutrient levels are within Tolerable limits.	50th percentile of the data must be ≤ 0.025 mg/L PO_4-P (Agriculture - irrigation: driver)
Ensure that electrical conductivity (salt) levels are within Ideal limits.	75th percentile of the data must be ≤ 30 mS/m (Aquatic ecosystems: driver)
Ensure that toxics are within Ideal limits or A categories.	75th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996b) and DWAF (2008)
Ensure water quality state maintains biotic requirements as specified by RQOs for biota.	See specified biota requirements

IUA 6: NORTHERN TRIBUTARIES TO LETABA
Moderate priority RUs: Water quality RQOs

Narrative RQOs	Numerical RQOs
Ensure that nutrient levels are within Acceptable limits.	50th percentile of the data must be ≤0.025 mg/L PO_4-P (Aquatic ecosystems: driver)
Meet faecal coliform targets for recreational (full contact) use.	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996a)
Ensure water quality state maintains biotic requirements as specified by RQOs for biota.	See specified biota requirements

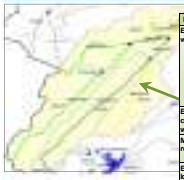
IUA 7: UPPER MIDDLE LETABA + TRIBS
Moderate + High priority RUs: Water quality RQOs

Narrative RQOs	Numerical RQOs
Ensure that nutrient levels are within Acceptable limits.	50th percentile of the data must be ≤0.015 mg/L PO_4-P (Agriculture – Irrigation / Aquatic ecosystems: drivers)
Ensure that toxics are within Ideal limits or A categories.	75th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996b) and DWAF (2008)
Ensure water quality state maintains biotic requirements as specified by RQOs for biota.	See specified biota requirements

IUA 9: KLEIN LETABA (DOWNSTREAM FROM GIYANI)
Moderate priority RUs: Water quality RQOs

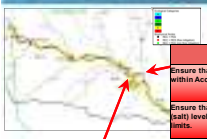
Narrative RQOs	Numerical RQOs
Ensure that nutrient levels are within Acceptable limits.	50th percentile of the data must be less than or equal to 0.025 mg/L PO_4-P (Aquatic ecosystems: driver).
Ensure that electrical conductivity (salt) levels are within Acceptable limits.	75th percentile of the data must be less than or equal to 55 mS/m (Aquatic ecosystems: driver)
Meet faecal coliform targets for recreational (full contact) use	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996a)
Ensure that turbidity or clarity levels stay within Acceptable limits.	A moderate change from present with temporary high sediment loads and turbidity during runoff events. (Aquatic ecosystems: driver)
Ensure that toxics are within Ideal limits or A categories.	75th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996b) and DWAF (2008)
Ensure water quality state maintains biotic requirements as specified by RQOs for biota.	See specified biota requirements

IUA 7: UPPER MIDDLE LETABA + TRIBS
Moderate priority RUs: Water quality RQOs



Narrative RQOs	Numerical RQOs
Ensure that nutrient levels are within Tolerable limits.	50th percentile of the data must be less than or equal to 0.125 mg/L PO_4-P (Aquatic ecosystems / Agriculture - irrigation: drivers). 50th percentile of the data must be less than or equal to 1.0 mg/L TIN-N (Aquatic ecosystems: driver).
Ensure that electrical conductivity (salt) levels are within Acceptable limits.	75th percentile of the data must be ≤ 55 mS/m (Aquatic ecosystems: driver)
Meet faecal coliform targets for recreational (full contact) use	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996a)
Ensure that toxics are within Ideal limits or A categories.	75th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996b) and DWAF (2008)
Ensure water quality state maintains biotic requirements as specified by RQOs for biota.	See specified biota requirements

IUA 11, RU EWR 7 (LETABA)
High priority RU: Water quality RQOs



EcoSpec + TPC tables for ecological requirements

Narrative RQOs	Numerical RQOs
Ensure that nutrient levels are within Acceptable limits.	50th percentile of the data must be less than or equal to 0.025 mg/L PO_4-P (Aquatic ecosystems: driver).
Ensure that electrical conductivity (salt) levels are within Acceptable limits.	75th percentile of the data must be less than or equal to 55 mS/m (Aquatic ecosystems: driver)
Ensure that turbidity or clarity levels stay within Ideal limits.	A small change from natural state (Aquatic ecosystems: driver)
Ensure that toxics are within Ideal limits or A categories.	75th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996b) and DWAF (2008)
Ensure water quality state maintains biotic requirements as specified by RQOs for biota.	See specified biota requirements

IUA 8 + 9: KLEIN LETABA UPSTREAM FROM DAM (IUA 8), INCLUDING EWR 5 IN IUA 9 (TO GIYANI)
Moderate + High priority RUs: Water quality RQOs

EcoSpec + TPC tables for ecological requirements

Narrative RQOs	Numerical RQOs
Ensure that nutrient levels are within Acceptable limits.	50th percentile of the data must be less than or equal to 0.015 mg/L PO_4-P (Aquatic ecosystems: driver).
Meet faecal coliform targets for recreational (full contact) use	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996a)
Ensure that turbidity or clarity levels stay within Acceptable limits.	A moderate change from present with temporary high sediment loads and turbidity during runoff events. (Aquatic ecosystems: driver)
Ensure that toxics are within Ideal limits or A categories.	75th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996b) and DWAF (2008)
Ensure water quality state maintains biotic requirements as specified by RQOs for biota.	See specified biota requirements