The Modder – Riet Catchment Management Forum

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Chair: MR CMF (Bloem Water)
Challenges in water sector

- Diversity of resources-augmentation
- Water conservation and demand management
- Disability of municipalities
- Pollution 1. WWTW’s 2. Mines
- Non implementation of the National Water Act
Functions of Forums

- Institution to facilitate participation of stakeholders
- Enable public to participate in WRM
- Ongoing role of Catchment Forums after CMA

After CMA

- Promote planning and cooperative WRM
- Public participation body of the CMA
DETERMINATION OF RESOURCE WATER QUALITY OBJECTIVES FOR THE MODDER-RIET SYSTEM
RWQO: Balance between downstream User requirement and upstream impacts (uses)
RWQOs DETERMINATION PROCESS

1. Geographical Extent
2. Anthropogenic Characteristics & Ecology
3. WQ Monitoring Programs (location)
4. WQ Status & Trends
5. Delineation & Confirmation of Management Units
6. ID of RWQO Sites
7. Parameters & Catchment specific WQGs
8. Levels of Protection & RWQOs
9. Evaluation & Finalization of RWQOs

SA WQGs

UTAI

RWQOs
X mg/l
Y mg/l
Z mg/l
Catchment Overview
Land use in the Area is dominated by Natural Areas, Farmlands (dryland and irrigated) and Urban Areas. Mining also occurs but is not extensive.
Water Resource MU’s for the Modder-Riet System are the same as those proposed in the CMS. Motivations for the selection of each MU is contained in the CMS.

Proposed Management Units

Recommendation: Check influence of Vaal (pushback into Riet will influence MU)

Recommendation: Split MU6

Site Visits:
- Kalkfontein WUA
- Oranje Riet WUA
- Oranje – Vaal WUA

Site Visits images with people pointing to the location of MU3, MU5, and MU6.
RWQO sites are identified such that it allows the Water Resource Manager to:

- exercise control over the quality of water that enters a MU: must be supplied to downstream users
- exercise control over the quality of water leaving a MU.
Red Points (11 Sites) were selected as RWQO Sites

Green Points (3 Sites) required further investigation.

Lower Modder River receives water from the Orange River via the OR Canal:
Recommendation to ensure that Modder and O-R water is distinguished between

Lower Riet River does not receive water from Kalkfontein Dam. Instead it is transported via a canal to users.
Recommendation to take into cognizance the operation of the scheme when setting sites for RWQO's
Nutrient-loading
Salt-loading
Microbial pollution
Sedimentation
Parameters of Concern

- Ammonia
- Phosphate
- Sulphate
- Chloride
- EC
- TDS
- F. & E. Coli
- SAR
- Sodium
Water Users Per MU

MU6: Lower Riet
- Domestic,
- Agriculture (Irrigation),
- Agriculture (Stock Watering)
- Ecology,
- Industry (Category 4)

MU5: Middle Riet
- Domestic,
- Agriculture (Irrigation),
- Agriculture (Stock Watering)
- Ecology,
- Recreation (Non-contact, Intermediate-Contact).

MU4: Upper Riet
- Domestic,
- Agriculture (Irrigation),
- Agriculture (Stock Watering)
- Ecology,
- Recreation (Non-contact, Intermediate-Contact).

MU3: Lower Modder
- Agriculture (Irrigation),
- Agriculture (Stock Watering),
- Ecology &
- Recreation (Non-contact).

MU2: Middle Modder
- Domestic,
- Agriculture (Irrigation),
- Agriculture (Stock Watering),
- Ecology,
- Recreation (Non-contact, Intermediate-Contact, Full Contact).

MU1: Upper Modder
- Domestic,
- Agriculture (Stock Watering),
- Ecology,
- Recreation (Non-contact, Intermediate-Contact, Full Contact).
### MU 2: MIDDLE MODDER

**Users:** Domestic, Ecology, Recreation (Non-contact, Intermediate-Contact, Full Contact), Agriculture (Irrigation), Agriculture (Livestock Watering)

**VARIABLE** | **UNITS** | **I** | **A** | **T** | **Sensitive User**
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Ammonia (NH3-N) | mg/l | 0.015 | 0.043 | 0.1 | AqE
Chloride (Cl) | mg/l | 100 | 137 | 175 | Dom, Alr
Sodium (Na) | mg/l | 70 | 92.5 | 115 | Alr
SAR | mg/l | 2000 | 8000 | 15000 | Alr
EC | mS/m | 30 | 55 | 85 | AqE
TDS | mg/l | 260 | 1000 | 2400 | Alr
Phosphate (PO4-P) | mg/l | 0.005 | 0.06 | 0.125 | AqE
Sulphate (SO4) | mg/l | 200 | 400 | 600 | Dom
F. Coli | #/100ml | 130 | 1065 | 2000 | RFc
E. Coli | #/100ml | - | - | - | -
Proposed Levels of Protection

NOTE: Results from Reserve
Figure 1: The State of the Modder River for the Second Term of 2010 (Sites sampled: CR1 – Wapener, CR2 – Welbedacht Dam Wall (below), MR1 – Modder-Novo, MR2 – Rustfontein Dam inflow, MR3 – Rustfontein Dam Wall, MR4 – Sannaspoort, SS1 – Sepasie Spruit, MR5 – Mokke’s Dam, RS1a – Renoster at Bloom, RS1 – Bishop’s Weir, MR8a Glen, MR6 – Soutdoring, MR7a – Berdeberg, MR8 – Brakdam, MR9 – Modder above confluence, RR1 Riet River (Jacobsdal), RR2 Riet River at confluence). NB: Grey symbol means no sample was taken, Orange symbol means between fair and poor. Fish results from April 2008, Riparian Vegetation results from 2006 and Geomorphology results are from 2005, Macroinvertebrate results according to SASSS.
Existing RWQO’s

Vaal IWQMS: Riet Level 2 RWQO

Orange IWQMP: LEVEL 1 RWQO ORS8

Catchment wide RWQO’s (MR CMS) – i.e one set of WQ objectives for whole catchment
Implementation of RWQO’S

• Receiving water quality objectives – promulgation
• WULA
• Quality conditions
• Pollution pay principle
• Compliance
THE WAY FORWARD

- Sanction of RWQO’s by MR CMF
- Finalisation of Report
- Implementation
- Further refinement
Thank You!