water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

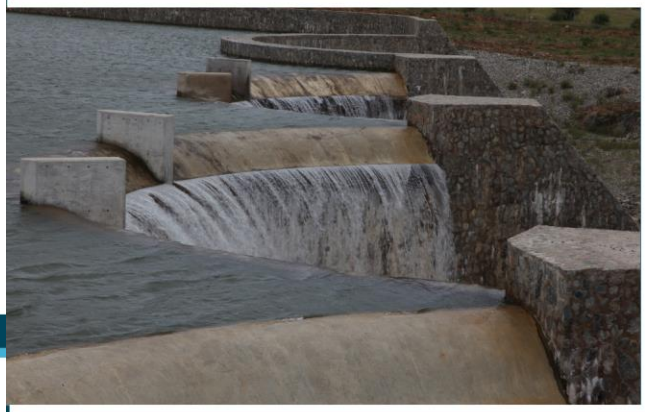
2030 NDP
NATIONAL DEVELOPMENT PLAN
Our Future - make it work

CLASSIFICATION OF SIGNIFICANT WATER RESOURCES AND DETERMINATION OF RESOURCE QUALITY OBJECTIVES FOR WATER RESOURCES IN THE USUTU TO MHLATHUZE CATCHMENTS (WP11387)

DEVELOPMENT OF RESOURCE QUALITY OBJECTIVES

Durban 22 August 2023

Rivers: RQO Background in terms of EcoSpecs and TPCs



Workshop: Development of Resource Quality Objectives

4.1 Rivers: RQO Background in terms of EcoSpecs and TPCs

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WHAT ARE RQOs?

RQOs capture the Water Resource Class of the Classification System and the ecological needs determined in the Reserve into measurable management goals that give direction to resource managers as to how the resource needs to be managed.

"RQOs for a water resource are a numerical or descriptive statement of the conditions which should be met in the receiving water resource, in terms of resource quality, in order to ensure that the water resource is protected."

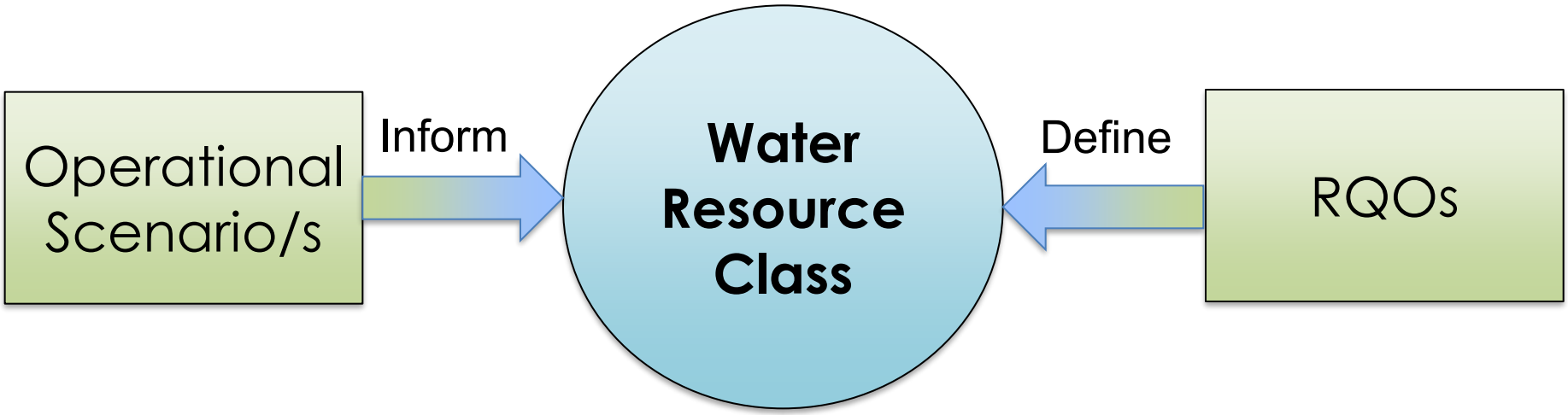
WHAT ARE RQOs?

In essence:
RQOs are the objectives or goals which can be measured or monitored to determine whether the Class is being achieved.

I.e.
RQOs are set for the Water Resource Class – more applicably

FOR THE TARGET ECOLOGICAL CATEGORY (TEC) FOR EACH COMPONENT (CATCHMENT CONFIGURATION)

RQOs and WATER RESOURCE CLASSES



WHERE DO YOU SET RQOs?

In Resource Units (homogeneous river reach which can be represented by an EWR site):

- **RQOs can be set for each Resource Unit – at a minimum at high priority RUs**
- **Resource Units must be prioritised, and high priority Resource Units must have detailed RQOs**
- **Four (4) Resource Unit priority level of RQOs have been determined – links to hotspots**
- **Different levels of RQOs are set for each priority level**

NB: Provide some level of RQO for each RU

FOR WHICH INDICATORS ARE RQOs SET?

- **Hydrology** (flow): Quantity, pattern and timing of instream flow (repr. by time series, FDC). Defined by the recommended scenario.
- **Water quality:** Narrative + numerical values that define the fitness of use and/or ecological requirements for various variables.
- Characteristics and condition of **riparian habitat and biota** (% alien vegetation, cover, species).
- Characteristics and condition of **instream habitat and biota** (frequency of occurrence, species/taxa, abundance, habitat).

NOTE: Not all RQOs are set for all RUs – depends on priority.

RU PRIORITY LEVELS AND ASSOCIATED RQOs

- **RUs with EWR sites**
  - **Flow RQOs (EWRs according to TEC)**
  - **Habitat and biota RQOs for fish, aquatic invertebrates, riparian vegetation, geomorphology and water quality**

- **High priority RUs with no EWR sites**
  - **Broad (desktop level) flow RQOs (EWRs according to TEC)**
  - **Available information used to provide qualitative biota and habitat RQOs. If none available, then PES and TEC.**
  - **Broad water quality info (unless wq hotspot)**

- **Other priority Rus**
  - **Broad (desktop level) flow RQOs (EWRs according to TEC)**
  - **Habitat and biota RQOs represented by the PES and TEC**

ECOSPECS AND RQOs

- ECOSPECS are the numerical RQOs provided for high RU priority level for biota and habitat.
- ECOSPECS can only be provided at EWR sites as that is where the detail work has been undertaken.
- I.E, the difference between RQOs and ECOSPECS are that there are additional RQOs which are not ECOSPECS – user water quality specifications.
- Additional difference: ECOSPECS ARE NUMERICAL AND THEREFORE ALWAYS RELEVANT FOR EWR SITES.

ECOSPECS AND RQOs

- **Thresholds of Potential Concern (TPCs) are upper and lower levels along a continuum of change.**
- **Approaching TPCs would initiate more detailed investigation and management actions.**
- TPCs are regarded as early warning indicators of potential change from a particular EC to another (lower EC).
- **TPCs are linked to EcoSpecs.**

ECOSPECS ARE SET FOR:

- Hydrology
- Physico-chemical variables (water quality)
- Habitat Integrity / Geomorphology
- Riparian vegetation
- Fish
- Macoinvertebrates

REMINDER: DESCRIPTION OF RIVER STATE