water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

2030 NDP

DETERMINATION OF WATER RESOURCE CLASSES AND ASSOCIATED RESOURCE QUALITY OBJECTIVES IN THE THUKELA CATCHMENT

PROJECT STEERING COMMITTEE MEETING 6

Presented by:
Golder Associates

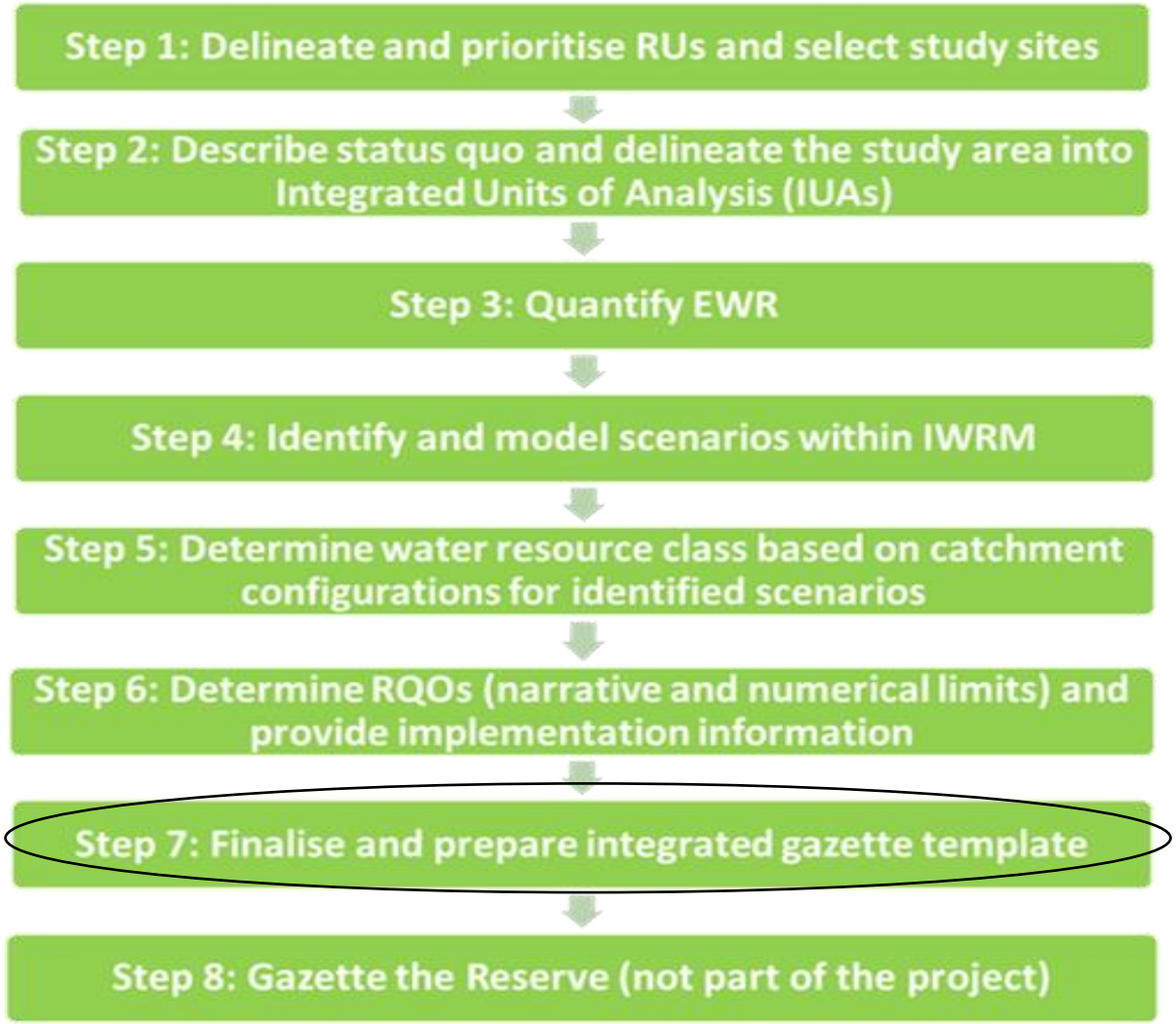
Date: 28 July 2021

Purpose of the meeting

To present progress related to:

- Draft Gazette outline

Study Process



PROPOSED WATER RESOURCE CLASSES AND RESOURCE QUALITY OBJECTIVES FOR THUKELA CATCHMENTS IN THE PONGOLA-MTAMVUNA WATER MANAGEMENT AREA

DRAFT GAZETTE

GAZETTE NOTICE

NOTICE_____OF 2021

DEPARTMENT OF WATER AND SANITATION

NATIONAL WATER ACT, 1998

(ACT NO.36 OF 1998)

PROPOSED WATER RESOURCE CLASSES AND RESOURCE QUALITY OBJECTIVES FOR THUKELA CATCHMENTS IN THE PONGOLA-MTAMVUNA WATER MANAGEMENT AREA

I, Lindiwe Nonceba Sisulu, in my capacity as Minister of Water and Sanitation, and duly authorised in terms of section 13 (4) of the National Water Act (Act No. 36 of 1998) hereby publish the notice for public comment on the proposed water resources classes and the associated resource quality objectives, in the Schedule, to be issued under section 13 (1) of the National Water Act (Act No. 36 of 1998).

Any person who wishes to submit written representations or comments in connection with the proposed water resources classes and resource quality objectives is invited to do so within 60 days of publication of this Notice. All representations and comments must be submitted in writing to:

Director: Water Resource Classification (Lebogang Matlala)

Department of Water and Sanitation

Ndiyane Building

287 Francis Baard Street

Private Bag x 313

Pretoria

0001

Facsimile: 012 336 6712

Email: matlalal@dws.gov.za

MS LN SISULU

MINISTER OF WATER AND SANITATION

DATE:

PREAMBLE

Recognizing that the Minister is required to use the promulgated Water Resource Classification System to determine the class and Resource Quality Objectives of all or part of a water resource considered to be significant; Recognizing that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users; recognizing that the ultimate aim of water resource management is to achieve the sustainable use of water for the benefit of all users; therefore the Minister is determining the class of each significant water resource and the associated Resource Quality Objectives.

SCHEDULE

PROPOSED WATER RESOURCE CLASSES AND RESOURCE QUALITY OBJECTIVES FOR THUKELA CATCHMENTS IN THE PONGOLA-MTAMVUNA WATER MANAGEMENT AREA

1 DESCRIPTION OF THE WATER RESOURCE

The water resource classes and Resource Quality Objectives are determined for all or part of every significant water resource within the Pongola-Mtamvuna Water Management Area as set out below:

Water Management Area: Pongola-Mtamvuna

Drainage Region: V Primary Drainage Region

River(s): Thukela System

The Minister has, in terms of section 12 of the National Water Act, Act No 36 of 1998 (the Act), prescribed a system for classifying water resources by promulgating Regulation 810, Government Gazette 33541 dated 17 September 2010. In terms of section 13(1) of the Act the Minister must, as soon as reasonably practicable after the Minister has prescribed a system for classifying water resources and subject to subsection (4), by notice in the Gazette, determine for all or part of every significant water resource, a class in accordance with the prescribed classification system.

The Minister, in terms of section 13(1)(a) of the Act, has determined the following classes of each significant water resource in the Thukela catchments in the Pongola-Mtamvuna Water Management Area.

The Minister, in terms of section 13(1)(b) of the Act, has determined the following resource quality objectives of each significant water resource in the Thukela catchments in the Pongola-Mtamvuna Water Management Area.

Date from which Resource Quality Objectives will apply: From the day of approval of the gazetted Resource Quality Objectives for the Thukela catchments in the Pongola-Mtamvuna Water Management Area.

DEFINITIONS

In this schedule any word to which a meaning has been assigned in the National Water Act shall bear such meaning unless the context indicates differently.

- **Class I:** The configuration of Ecological Categories of the water resources within a catchment results in an overall condition of that water resource that is minimally altered from its predevelopment condition.

- **Class II:** The configuration of ecological Categories of the water resources within a catchment results in an overall condition of that water resource that is moderately altered from its predevelopment condition.

- **Class III:** The configuration of ecological Categories of the water resources within a catchment results in an overall condition of that water resource that is significantly altered from its predevelopment condition.

- **Ecological category:** Means the assigned ecological condition by the Minister to a water resource that reflects the ecological condition of that water resource in terms of the deviation of its biophysical components from the natural reference condition.

- **Ecological Water Requirement:** The flow patterns (magnitude, timing, and duration) and water quality needed to maintain a riverine ecosystem in a particular condition. This term is used to refer to both the quantity and quality components.

- **Water Resource Class:** Represents the attributes required of different water resources by the water resource custodian (Department of Water and Sanitation).

- **Resource Quality Objectives:** The descriptive statements and numerical values for the biological, physical, and chemical attributes of the significant water resources throughout the catchments. They are narrative and qualitative statements that describe the overall objectives for the Resource Unit.

- **Resource Unit:** A stretch of river that is sufficiently ecologically distinct to warrant its own specification of an Ecological Water Requirement or Resource Quality Objective and as such the geographic boundaries of each must be clearly delineated. A resource unit is a section of a river that frequently has different natural flow patterns, reacts differently to stress according to their sensitivity, and requires individual specifications of the ecological requirements and Resource Quality Objectives appropriate for that reach, as compared to the rest of the river. The delineation of a catchment into resource units is done primarily on a biophysical basis, and where the hydrology, geomorphic characteristics (i.e., geomorphic zone), water quality attributes and river size remain relatively similar, as well as on the homogeneity of impacts. A Resource Unit is the basic unit of a water resource to which Resource Quality Objectives will apply.

- **Integrated Unit of Analysis:** Represents a homogenous catchment area of similar impacts and a broad-scale unit for assessing the socio-economic implications of different catchment configuration scenarios and to report on the ecological conditions at a sub-catchment scale. An integrated unit of analysis must be considered in the determination of Resource Quality Objectives.

- **Present Ecological State**: The current health or integrity of various biological attributes of the resource, compared to the natural or close to natural reference conditions.

- **Recommended Ecological Category**: A category indicating the ecological management target for a water resource based on the ecoclassification that should be attained. Values range from Category A (unmodified, natural) to Category D (largely modified).

- **Target Ecological Category**: The ultimate target to achieve a sustainable system both ecologically and economically, considering the Present Ecological State and Recommended Ecological Category. The Target Ecological Category can be the same as the Present Ecological State or the Recommended Ecological Category. However, it may also be worse than the Present Ecological State if a system is targeted for development that will impact the present state, or better where a higher level of protection is needed.

- **Percentile:** Non-exceedance probability i.e., at the 95th percentile, 95 percent of values must be less than the value; and at 50th percentile 50, percent of values must be less than the value.

2 DETERMINATION OF THE CLASS OF A WATER RESOURCE IN TERMS OF SECTION 13 (1) (a) OF THE NATIONAL WATER ACT, 1998

1. Each integrated unit of analysis represents a homogenous catchment area of similar impacts and socio-economic zones. The water resources within an integrated unit of analysis are classified in terms of their extent of permissible utilization and protection as either Class I, indicating higher ecological protection and minimal utilization; Class II, indicating moderate protection and moderate utilization; or Class III, indicating sustainable minimal protection and high utilisation. A resource unit is a stretch of river within an integrated unit of analysis that is sufficiently ecologically distinct to warrant its own specification of resource quality objectives. A node indicates the flow modelling points within an integrated unit of analysis and could serve as a sampling location for Resource Quality Objectives within a resource unit. The Recommended Ecological Category of a water resource refers to the ecological condition that must be attained and where the Recommended Ecological Category has not been determined the water resource is described in terms of its Present Ecological State.
2. The proposed water resource classes for the Thukela catchments are listed in Table 1 according to the overall class per integrated unit of analysis and indicated in Figure 1.

Table 1: Proposed Water Resource classes for Thukela catchments

Integrated Units of Analysis		Recommended Water Resource Class
Number	**Name**	
1	Upper Buffalo	III
2	Ngagane River	III
3	Middle Buffalo	III
4	Lower Buffalo	II
5	Blood River	III
6	Sundays River	III
7	Upper Mooi River	III
8	Lower Mooi River	III
9	Middle/Lower Bushman's River	III
10	Upper Thukela River	III
11	Klip River	III
12	Middle Thukela River	III
13	Lower Thukela River	II
14	Escarpment	I
15	Thukela Estuary	II

Figure 1: Proposed Water Resource Classes for the Thukela catchments

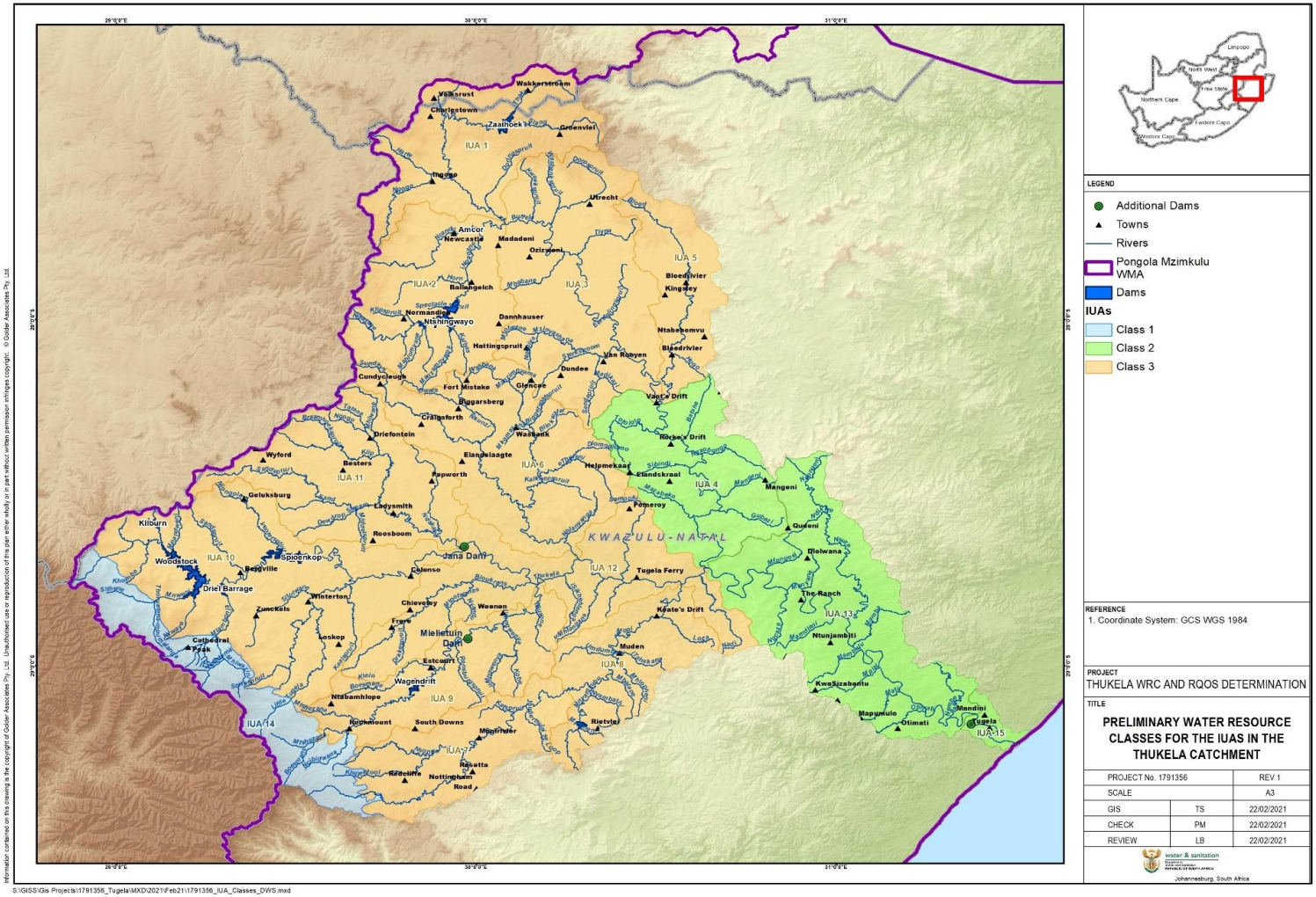


Table 2: Integrated Units of Analysis delineated for Thukela catchments

Integrated Unit of Analysis	Catchment area	Quaternary catchment
1	Upper Buffalo	V31A; V31B; V31C and V31D
2	Ngagane River	V31E; V31F; V31G; V31H; V31J; V31K
3	Middle Buffalo	V32A; V32B; V32C; V32D; V32E; V32F;
4	Lower Buffalo	V33A; V33B; V33C; V33D
5	Blood River	V32G; V32H
6	Sundays River	V60A; V60B; V60C; V60D; V60E; V60F
7	Upper Mooi River	V20A (lower portion); V20B (lower portion); V20C; V20D; V20E
8	Middle/Lower Mooi River	V20F; V20G; V20H; V20J
9	Middle/Lower Bushman's River	V70A (lower portion) V70C; V70D; V70E; V70F; V70G
10	Upper Thukela River	V11A (lower portion), V11C; V11D; V11E; V11F; V11H; V11J; V11K; V11L; V11M; 13A (lower reaches) V13B; V13C; V13D; V13E; V14A; V14B
11	Klip River	V12A; V12B; V12C; V12D; V12E; V12F; V12G
12	Middle Thukela River	V14C; V14D; V14E; V60G; V60H; V60J; V60K
13	Lower Thukela River	V40A; V40B; V40C; V40D; V40E; V50A; V50B; V50C; V50D (upper portion)
14	Escarpment	V20A (upper reaches); V20B (upper reaches); V70A (upper reaches); V70B; V13A (upper reaches); V11G; V11B; V11A (upper reaches)
15	Thukela Estuary and upstream Thukela reach	V50D

Figure 2: Integrated Units of Analysis delineated for the Thukela catchments

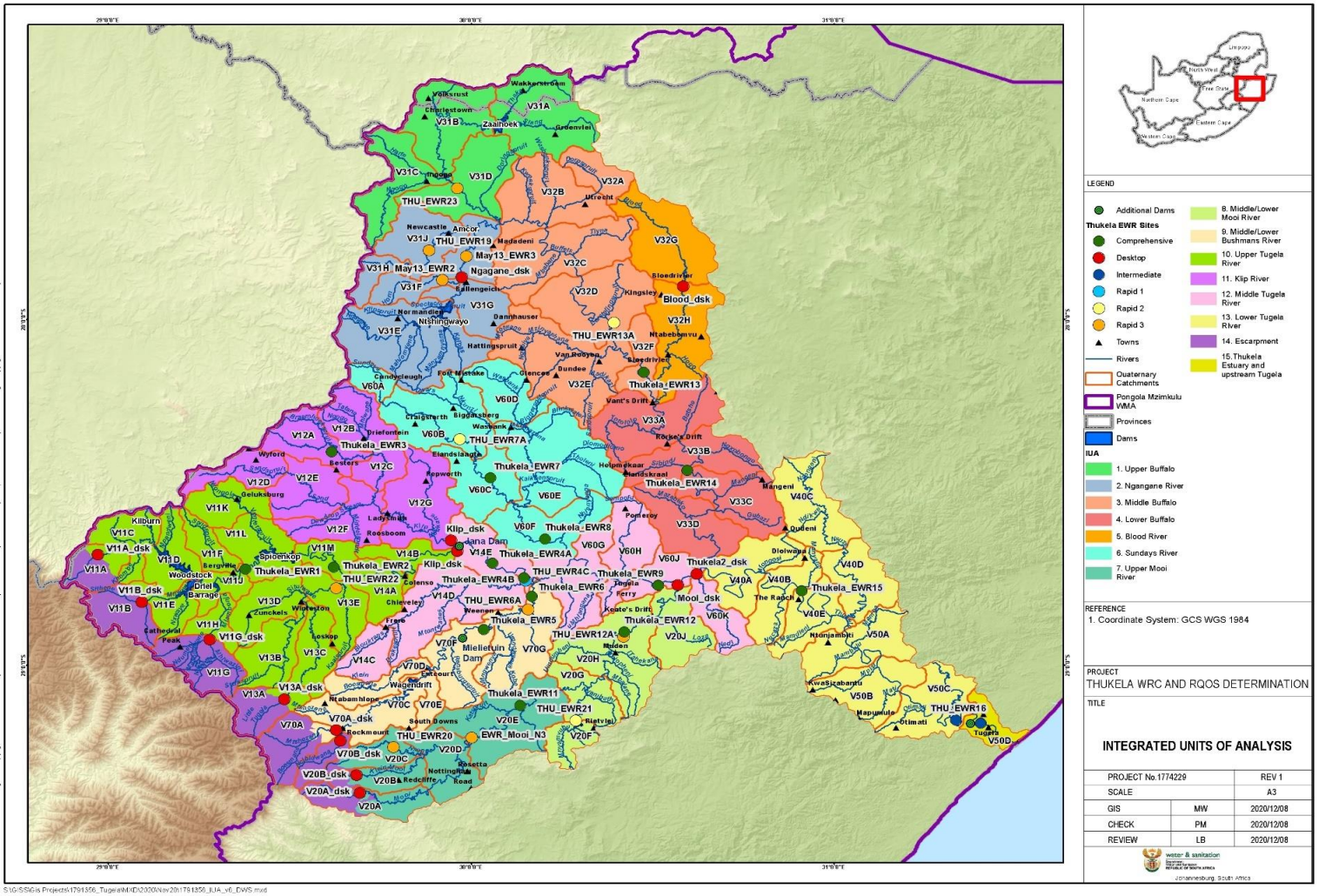


Table 3: Resource Units delineated for the Thukela catchments

RU Number	Resource Unit (Description)	Quaternary catchment
IUA 1: Upper Buffalo River		
1.1	Wetland resource unit: Wakkerstroom	V31A
1.2	Zaaihoek Dam	V31A
1.3	Buffalo and Slang	V31B
1.4	Ngogo and Harte to confluence with Buffalo	V31C
1.5	Doringspruit catchment	V31D
1.6	Buffalo to confluence to Ngagane	V31C, D
IUA 2: Ngagane River		
2.1	Upper Ngagane to Ntshingwayo Dam	V31E
2.2	Ntshingwayo Dam	V31E
2.3	Horn to confluence with Ngagane	V31F
2.4	Ncandu to confluence with Ngagane	V31H, J
2.5	Ngagane from Ntshingwayo Dam to confluence with Buffalo	V31G, K
IUA 3: Middle Buffalo River		
3.1	Dorps (including Kweek and Wasbankspruit) to confluence with Buffalo	V32A, B
3.2	Tiyna, Eersteling	V32C, D
3.3	Mbabane	V32C
3.4	Mzinyashana including Sterkstroom and Sandspruit	V32 E
3.5	Buffalo from Ngagane to Blood River confluence	V32B, C, D, E, F

Figure 3: Resource Units of the Thukela catchment

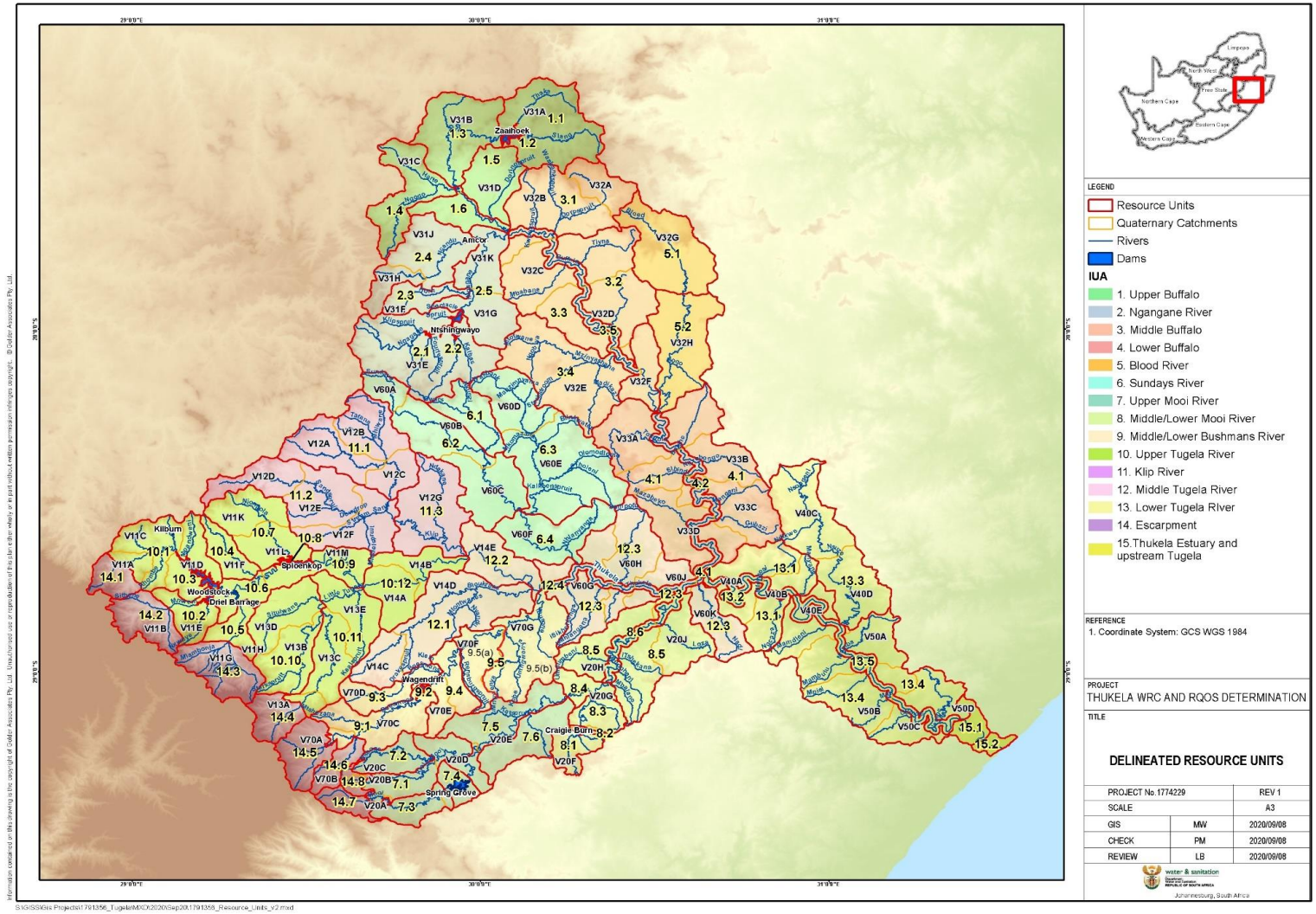


Table 4: Summary of Water Resource Classes per Integrated Unit of Analysis and Ecological Categories – Thukela catchments

IUA	Proposed Water Resource Class	Node Name	Quaternary Catchment	Resource Unit	River Name	Ecological Category to be maintained	Mean Annual Runoff (million m^3/a)	EWR as % of natural Mean annual run-off
1: Upper Buffalo River	**III**	W1	V31A	**1.1**	Wetland resource unit: Wakkerstroom	B	-	-
		-	V31A	**1.2**	Zaaihoek Dam	-	-	-
		R1 (Desktop)	V31B	**1.3**	Buffalo and Slang rivers	C	-	-
		R2	V31C	**1.4**	Ngogo and Harte to confluence with Buffalo	-	-	-
		R3	V31D	**1.5**	Doringspruit River	-	-	-
		THU_EWR23	V31D	**1.6**	Buffalo to confluence to Ngagane	C	221.96	31.75%
2: Ngagane River	**III**	R5 (Desktop)	V31E	**2.1**	Upper Ngagane to Ntshingwayo Dam	C	-	-
		-	V31E	**2.2**	Ntshingwayo Dam	-	-	-
		May13_EWR2	V31F	**2.3**	Ngagane River	C	160.12	33.65%
		THU_EWR19	V31J	**2.4**	Ncandu River	B/C	50.83	29.36%
		May13_EWR3	V31K	**2.5**	Ngagane River	C/D	160.12	23.93%

3 RESOURCE UNITS SELECTED WITH PROPOSED RESOURCE QUALITY OBJECTIVES

Table 5 provides:

(i) the listed Integrated Unit of Analysis in the Thukela catchments for which Resource Quality Objectives are proposed;
(ii) the selected Water Resources (Rivers, Wetlands, Dams and Groundwater) for which Resource Quality Objectives are proposed and
(iii) reference to subsequent tables that list the proposed Resource Quality Objectives per selected sub-components (quantity, quality, habitat, biota or groundwater) per Resource Unit.

Integrated Unit of Analysis	Resource Unit	RIVERS				DAMS				List of applicable tables with proposed Resource Quality Objectives (RQOs)	Ground Water tables with proposed RQOs	Wetlands tables with proposed RQOs	Estuary table with proposed RQOs
		Quantity	Quality	Habitat	Biota	Quantity	Quality	Habitat	Biota				
1: Upper Buffalo River	1.1	X	X		X					Table 6 (Rivers and Dams)	Table 22 (Groundwater)	Table 21 (Wetlands)	
	1.2					X	X			Table 6 (Rivers and Dams)			
	1.3	X	X	X	X					Table 6 (Rivers and Dams)			
	1.6	X	X	X	X					Table 6 (Rivers and Dams)			

List of tables

- Rivers and Dams: Tables 6 to 20
- Wetlands: Table 21
- Groundwater: Tables 22 – 36
- Estuary: Table 37

Discussion

Next steps

The next steps involve processes for requesting Ministerial approval to gazette for public comments for 60 days.