

# Classification of Significant Water Resources and Determination of Resource Quality Objectives for Water Resources in the Usutu to Mhlathuze Catchments

Project Steering Committee (PSC 1) meeting  
Background Information Document (BID)  
7 June 2022



water & sanitation  
Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA

## PURPOSE OF THIS DOCUMENT

The purpose of this background information document (BID) is to inform stakeholders about this study that will determine Water Resource Classes and Resource Quality Objectives (RQOs) for significant water resources in the Usutu to Mhlathuze Catchments.

This BID contains the following:

- A brief overview of the Water Resource Classification System;
- An overview of the study area;
- An indication of where we are in the study process;
- The proposed Integrated Units of Analysis (IUAs) delineated and the Status Quo described for the study area;
- The proposed Resource Units (RU) selected and prioritised
- Stakeholder engagement process;
- The way forward.

This document specifically provides a summary of the results of Task 1 and Task 2 of the study.

Through this process water resources within the catchments will be classified in accordance with the Water Resource Classification System and RQOs will be determined.

Stakeholders are invited to participate in the process by contributing information at meetings and workshops, or by corresponding with the stakeholder engagement office or the technical team at the addresses provided below.

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## BACKGROUND

The National Water Act, 1998 (Act No. 36 of 1998), (NWA) is founded on the principle that National Government has overall responsibility for and authority over water resource management for the benefit of the public. It also requires that the nation's water resources be protected, used, developed, conserved, managed and controlled in an equitable, efficient and sustainable manner.

In order to achieve this objective, Chapter 3 of the National Water Act, 1998 (Act 36 of 1998) provides for the protection of water resources through the implementation of Resource Directed Measures (RDM).

The Chief Directorate: Water Ecosystems Management of the Department of Water and Sanitation (DWS) is responsible for the implementation of RDM which includes the classification of water resources, determination of the Resource Quality Objectives (RQOs) and the Reserve in terms of the Water Resource Classification System (WRCS). These protection measures aim to ensure that a balance is sought between the need to protect and sustain water resources on one hand and the need to develop and use them on the other.

The DWS is progressively determining water resources classes; Reserve and RQOs for all river systems in South Africa to ensure their protection and sustainable use, with the Usutu to Mhlathuze Catchments being among one of the current systems to be classified and RQOs determined.

This study is managed by a Project Management Committee (PMC) (consisting of relevant DWS representatives and the Professional Service Provider) which functions under the guidance of a Project Steering Committee (PSC).

The PSC is represented by various sectors of society and meets on a six-monthly basis to steer this study. Members of the PSC provide feedback to the constitutions / organisations which they represent. Information Documents (such as this document) is developed six-monthly and made available to stakeholders. The study commenced with a public meeting on 4 May 2022 during which the objectives of the study and the approach which will be followed was presented for comments. During the public meeting, stakeholders were requested to nominate members for the PSC. This study's final results will be presented at a public meeting before the gazetting process commences, which provides further opportunity for comment.

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## WHAT IS THE WATER RESOURCE CLASSIFICATION SYSTEM?

The Water Resource Classification System (WRCS) is a set of procedures for determining the desired characteristics of a water resource and is represented by a Water Resource Class. The Class outlines the attributes society requires of different water resources and reflects the importance given to protection and/or development.

The implementation of the WRCS, therefore, requires considering the social, economic and environmental landscape in a catchment in order to assess the costs and benefits associated with utilization versus protection of a water resource.

The actual process of applying the WRCS procedures to establish the Class is called the Classification process. The Classification process is a consultative process that allows stakeholders to participate in the setting of the Classes.

The outcome of the Classification process will be the approval of the Water Resource Classes. Once the classes have been established, RQOs are determined to give effect to the classes established. These protection measures will be gazetted in a government gazette and will be binding on all authorities or institutions.

### **Why do we need to classify water resources?**

The determination of a Class for a water resource represents the first stage in the protection process.

### **What is a Water Resource Class?**

A Water Resource Class, which will range from minimally used (Class I), to heavily used, (Class III) essentially describes the desired condition of the resource, along with the degree to which it can be utilised.

### **What are the outcomes of the Classification process?**

- Water Resource Classes and its Catchment Configuration: Class I, II, or III.
- Resource quality objectives (RQOs).
- The Reserve.

### **Water resources must be classified into the following:**

**Class I** water resource is one which is minimally used, and the overall ecological condition of that water resource is minimally altered from its predevelopment condition.

**Class II** water resource is one which is moderately used, and the overall ecological condition of that water resource is moderately altered from its predevelopment condition.

**Class III** water resource is one which is heavily used, and the overall ecological condition of that water resource is significantly altered from its predevelopment condition.

The Usutu-Mhlathuze study will follow a project plan which is based on the Integrated Steps for Classification and determining RQOs.

## WHAT ARE RESOURCE QUALITY OBJECTIVES?

Resource Quality Objectives (RQOs) are a set of narrative and/or numerical management objectives defined for any particular resource, once the Class has been determined.




RQOs encompass four components of the resource:

- Water quantity;
- Water quality;
- Habitat integrity; and
- Biotic characteristics.

RQOs are important management objectives against which resource monitoring will be assessed. Monitoring of set RQOs will provide an indication as to whether the Class is being maintained or achieved.

## PROCEDURE FOR DETERMINING THE WATER RESOURCE CLASSES AND SETTING RQOs: THE STUDY PLAN

The following tasks are undertaken for determining the Water Resource Classes and for setting the RQOs. Task 1 and 2 will be reported on at the PSC1 meeting. Task 3 is already underway. The duration of the study is 30 months – December 2021 to May 2024.

<b>Task 1</b>	<b>Delineate the Resource Units and Integrated Units of Analysis (IUAs) and describe the status quo of the water resources</b>	
<b>Task 2</b>	<b>Prioritise Resource Units (RUs) and select study sites</b>	
<b>Task 3</b>	<b>Quantify Basic Human Needs and Ecological Water Requirements (EWRs)</b>	
<b>Task 4</b>	<b>Identify and evaluate scenarios within Integrated Water Resource Management</b>	
<b>Task 5</b>	<b>Determine Water Resource Classes based on Catchment configurations for the identified scenarios</b>	
<b>Task 6</b>	<b>Determine RQOs (narrative and numerical limits) and provide implementation information for stakeholder review</b>	
<b>Task 7</b>	<b>Input into legal notice and Gazette the Class configuration and RQOs</b>	

## PURPOSE OF THIS STUDY

The purpose of this study is to determine Classes and RQOs for resources in the Usutu to Mhlathuze Catchments that will facilitate sustainable use of the water resources while maintaining ecological integrity.

## AN OVERVIEW OF THE STUDY AREA

The Usutu to Mhlathuze catchments are situated in the northern part of the KwaZulu-Natal province and also occupy the south-eastern corner of the Mpumalanga province (west of Swaziland). The catchments border both Swaziland and Mozambique and share two major river systems (the Usutu and Pongola) with these countries. The catchments in the area are as follows (see Figure 1):

- Mhlathuze,
- Mfolozi
- Mkuze/Hluhluwe
- Pongola
- Usutu and Lake Sibaya

These catchments are all mostly independent of each other and they all form part of the Usutu Basin, also referred to as the Maputo River Basin. The Usutu to Mhlathuze Catchments have been divided into six drainage areas, or secondary catchment areas, which are:

- Mhlathuze, including all the W1 catchments;
- Umfolozi, including all the W2 catchments;
- Mkuze, including all the W3 catchments;
- Pongola, including all the W4 catchments and part of this catchment falls within Swaziland;
- Usutu, including all the W5 catchments and much of this catchment falls within Swaziland; and
- The W7 catchment which is unique in that its water resources are dominated by groundwater.

The Mbuluzi secondary catchment, W6, is part of the Usutu to Mhlathuze Water Management Area (WMA6), but it falls completely within Swaziland and Mozambique. It is therefore not included as part of this study because it does not contribute to the Pongola and Usutu River systems.

The primary rivers in the area are the:

- Mhlathuze, Matigulu and Mlalazi rivers which are in W1;
- Mfolozi River in W2;
- Pongola and Bivane rivers in W4; and
- Assegaai, Usutu, Mpuluzi and Hlelo rivers in W5

The main contributors to the local economy are manufacturing, mining, agriculture and transport. Land-use includes commercial agriculture and irrigated crops, mostly sugarcane and citrus, dryland sugarcane, and farm dams that support irrigation. Afforestation exists in the upper parts of most catchments and communal lands support cattle and subsistence farming. The area also has conservation and ecotourism, with several nature reserves including Hluhluwe, Mfolozi, Mkuze, St Lucia, Sodwana and Itala. In addition, Lake St Lucia is a proclaimed World Heritage Site, also forming part of the key economic sectors within the area. Key industries in the area include pulp and paper

manufacturing, aluminium smelting, and dune mining for titanium and other heavy metals. The manufacturing sector is linked to railway infrastructure with a harbour at Richards Bay (the largest coal exporting terminal in South Africa).

Main towns include Richards Bay, Mtunzini, Ulundi, St Lucia, Vryheid, Paulpietersburg, Piet Retief, Amsterdam, Hluhluwe, St Lucia and Mkuze, Jozini and Pongola. Large dams in the area include the Klipfontein Dam, Goedertrouw, Hluhluwe, Bivane and Pongolapoort.

There are also a number of transfer schemes in the area, namely the Usutu (providing water for the cooling of coal-fired power generation plants in the Vaal and Olifants systems), Thukela-Mhlathuze, Mfolozi-Mhlathuze and Senekal Trust Transfer.

The Usutu to Mhlathuze catchments are amongst many water-stressed catchments in South Africa. These catchment areas are important for conservation and contain a number of protected areas, natural heritage sites, cultural and historic sites and other conservation areas that need to be protected. There are six RAMSAR sites (i.e Ndumo Game Reserve) within the catchments, which include the world heritage site, St. Lucia.

## STUDY APPROACH

This study focuses on the classification of significant water resources (rivers, wetlands, groundwater and the estuary) and determining associated RQOs in the Usutu to Mhlathuze Catchments.

The process begins by defining the current state of the water resource (or part thereof) in terms of the ecological and biophysical elements. A detailed status quo assessment of the catchment (water resource quality, water resource issues, existing monitoring programmes, infrastructure, institutional environment, socio-economics, sectoral water uses and users) is undertaken to understand the current conditions.

The catchment is then delineated into Integrated Units of Analysis (IUAs), where the catchment area is divided into basic units of assessment for the Classification of water resources, and into Resource Units (smaller units) for determining ecological water requirements (the Ecological Reserve). These processes form Tasks 1 and 2 of the Study Plan.

A process of modelling, taking into account the protection requirements and development demands, is undertaken to understand consequences of different development scenarios on the state of resources (Tasks 4 and 5 of the Study Plan).

A consultative process will then be undertaken, whereby the outcomes of the scenario analysis are discussed, taking into account the ecological, social and economic aspects, to define a future desired state of a water resource, namely the Water Resource Class. RQOs are then determined to ensure that the Classes that have been set can be met (Task 6 of the Study Plan). Once the consultation on the proposed classes and RQOs are complete, they are gazetted for public comment (Task 7 of the Study Plan).

## STAKEHOLDER ENGAGEMENT

The Classification and RQOs study process is supported by focused stakeholder engagement aligned to the technical steps and tasks of the study.

Stakeholders representing various relevant interests and sectors of society, as well as organs of state in the catchment, form part of the process and are invited to participate.

It is the intention of the Department that stakeholders oversee the Classification of water resources and determination of RQOs; provide input, comment and guidance, as well as communicate the key outcomes of the study to their constituencies and communities.

Regular communication and consultation with stakeholders will be undertaken over the course of the study. Stakeholders, Interested and Affected Parties (I&APs) and the public are encouraged to participate in the process.

A public meeting to announce the study, its objectives and approach was held on 4 May 2022. The first Project Steering Committee Meeting (PSC) will be held on 7 June 2022. PSC members will meet every six months to guide the study.

Stakeholders are welcome to visit the DWS website to download relevant information on the study - please visit: <http://www.dws.gov.za/rdm/WR/CSdefault.aspx>

## Task 1: Status Quo and Delineation of Resource Units and Integrated Units of Analysis

### What are Resource Units (RUs) and Integrated Units of Analysis (IUAs)?

- An IUA represents a catchment or a linear stretch of river.
- Nested in an IUA are RUs.
- Each RU is comprised of a group of similar Sub-Quaternary Reaches (short reaches of rivers for which a Present Ecological State (PES) database exists).

Each RU is represented by a biophysical node – a point for which an Ecological Category (EC) is set and EWRs estimated if required.

We classify at the scale of IUAs but provide the detail (Catchment Configuration) at the RU scale. RUs are nested within the IUAs.

### How do we divide the study area into manageable units (delineation process)?

- Start with the given delineation of the Primary W catchment into six Secondary Catchments (W1, W2, W3, W4, W5, W7).
- Delineation into Sub-Quaternary (SQ) reaches with ecological status also available.
- Determine the status of these units in terms of water resources (surface, groundwater, water

quality), ecology (rivers, wetlands, estuaries and feeder rivers), economy, social) – status quo / present state.

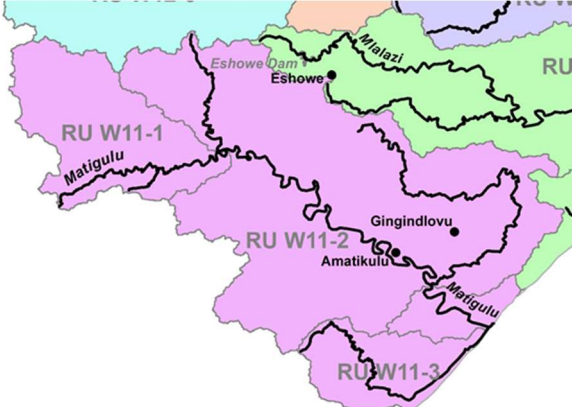

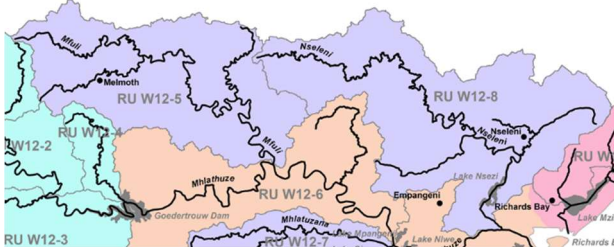

Note, ecology is described in terms of Ecological Categories ranging from A (near natural) to F (Critically modified). This describes the PES.

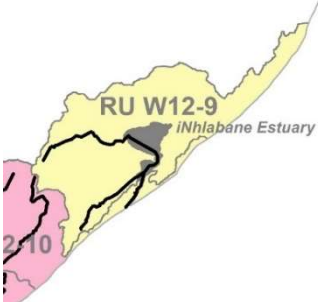
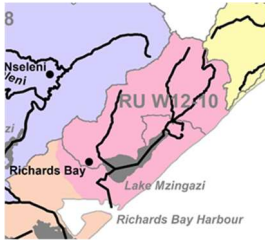

- Delineation 1: Group SQ Reaches into Resource Units (RUs). Resource Units are the scale at which all evaluations are undertaken.
- Group RUs into Integrated Units of Analysis (IUA). Each IUA and the RUs within the IUA represent the Catchment Configuration. Scale at which Classification is done. (See Table below)
- All information is captured in a working spreadsheet which forms the basis of all classification results.

Secondary Catchment	IUA No	IUA Descriptive Name
<b>W1</b>	W11	Matigulu
	W12-a	Upper Mhlathuze
	W12-b	Mfule, Mhlatuzane, Nseleni Tributary systems
	W12-c	Lower Mhlathuze
	W12-d	Lake Nhlabane
	W12-e	Lake Msingazi
	W13	Mlalazi
<b>W2</b>	W21	Upper and Middle White Umfolozi
	W22	Upper Black Umfolozi
	W23	Umfolozi-Hluhluwe Game Reserve
<b>W3</b>	W31-a	Upper Mkuze
	W31-b	Lower Mkuze
	W32-a	Upper Hluhluwe
	W32-b	Nyalazi and Mzinene Tributaries
Secondary Catchment	IUA No	IUA Descriptive Name
<b>W4</b>	W41	Bivane River
	W42-a	Upper Pongola
	W42-b	Middle Pongola (Ithala)
	W44	Middle Pongola (Grootdraai)
	W45	Lower Pongola (Floodplain)
<b>W5</b>	W51	W5 Upstream major dams
	W52	W5 Downstream major dams & Hlelo River
	W55	Mpuluzi & Lusushwana River systems
	W57	Lower Usutu River
<b>W7</b>	W70-a	Kosi Bay
	W70-b	Sibaya
<b>W2 &amp; W3</b>	IUA St Lucia	St Lucia

The results for each IUA are summarised in the table on page 5.

Status Quo summary per IUA (refer to Task 1 on page 4)

IUA Status Quo	IUA map
<b>W1 Catchment (Main River: Mhlathuze)</b>	
<p><b>IUA W11 Matigulu</b></p> <ul style="list-style-type: none"> <li>• Farm dams and river runoff. No major dams.</li> <li>• Groundwater Stress index: &lt; 0.05.</li> <li>• Large area of subsistence agriculture.</li> <li>• Low water quality impact.</li> <li>• Tribal Trust land and Entumeni Nature Reserve.</li> <li>• River PES largely C and C/D EC. Roads, extensive agriculture, vegetation clearing, alien vegetation, small dams.</li> <li>• Most wetlands in a D to F condition.</li> <li>• Matigulu estuary in a B.</li> </ul>	
<p><b>IUA W12-a Upper Mhlathuze</b></p> <ul style="list-style-type: none"> <li>• Farm dams and river runoff. Transfers from Thukela catchment.</li> <li>• Groundwater Stress index: &lt; 0.05.</li> <li>• Subsistence agriculture &amp; forestry.</li> <li>• Low water quality impacts.</li> <li>• Heart of Shaka and Zulu Kingdom.</li> <li>• River PES largely C EC. Roads, extensive agriculture, sand mining, alien vegetation, forestry.</li> <li>• Most wetlands in a C condition.</li> </ul>	
<p><b>IUA W12-b Mfule, Mhlathuzane, Nseleni Tributaries</b></p> <ul style="list-style-type: none"> <li>• Farm dams and river runoff. Lake Nsezi supplying Mhlathuze Water.</li> <li>• Groundwater Stress index: &lt; 0.05.</li> <li>• Tribal subsistence farming.</li> <li>• High water quality impact (WWTW discharges and mining).</li> <li>• Lower section is Melmoth area and Ingonyama Trust.</li> <li>• River PES largely C and B EC. Rural settlements, forestry, dams in tributaries, alien vegetation, dams &amp; WWTW.</li> <li>• Most wetlands in a D-F condition. Notable wetland is Nsezi.</li> </ul>	
<p><b>IUA W12-c Lower Mhlathuze</b></p> <ul style="list-style-type: none"> <li>• Releases from Goedertrouw Dam, Lake Cubhu supplying Eikhaweni.</li> <li>• Groundwater Stress index :&lt; 0.05.</li> <li>• Extensive irrigated sugar cane, fruit and vegetable production, forestry, industrial (paper mill, Richards Bay Port.).</li> <li>• Water quality impacts (high sedimentation, turbidity, settlements, and industrial impacts).</li> <li>• Nkwaleni valley (commercial farms and land reform) and Ingonyama Trust.</li> <li>• River PES highly modified due to Goedertrouw releases, extensive irrigated cultivation, alien vegetation, sand mining – lower section canalised.</li> <li>• Most wetlands in a D-F condition. Notable wetlands are Mhlathuze swamp system and floodplain, Cubhu, Thulazihleka.</li> <li>• Estuary in a D/E EC (cumulative pressure, port development, habitat destruction, pollution, overfishing).</li> </ul>	

IUA Status Quo	IUA map
<p><b>IUA W12-d Nhlabane</b></p> <ul style="list-style-type: none"> <li>• Lake Nhlabae supplying Richard Bay Minerals.</li> <li>• Groundwater Stress index: &lt; 0.05</li> <li>• Minor tourism activity.</li> <li>• Moderate water quality impacts.</li> <li>• Highly contested area and heavily populated.</li> <li>• River PES largely C due to extensive forestry.</li> <li>• Most wetlands in a D-F condition.</li> <li>• Estuary in an E EC (cumulative pressure, weir cutting off lake, mining, habitat destruction, pollution, overfishing).</li> </ul>	
<p><b>IUA W12-e Msingazi</b></p> <ul style="list-style-type: none"> <li>• Lake Mzingazi supplying Richard Bay.</li> <li>• Groundwater Stress index: &lt; 0.05.</li> <li>• Minor tourism activity.</li> <li>• Water quality impacts from RBM smelter impacts.</li> <li>• Highly contested area and heavily populated.</li> <li>• River PES largely C (extensive forestry, storm water runoff, RMB smelter, urban areas).</li> <li>• Notable wetland is Mzingazi.</li> </ul>	
<p><b>IUA W13 Mlalazi</b></p> <ul style="list-style-type: none"> <li>• Farm dams and river runoff. Eshowe and Rutledge Dam provide water to Eshowe town.</li> <li>• Groundwater Stress index: &lt; 0.05.</li> <li>• Emerging and subsistence agriculture.</li> <li>• Moderate water quality impacts.</li> <li>• Ingonyama Trust.</li> <li>• River PES largely C due to extensive formal agriculture, WWTW, dams, subsistence agriculture.</li> <li>• Most wetlands in a D-F condition. Notable wetland is Mlalazi.</li> <li>• Mlalazi Estuary in a B EC. In Umlalazi Nature Reserve.</li> <li>• Siyaya Estuary in an E EC. High cumulative pressure, flow modification, pollution, habitat destruction.</li> </ul>	

## Task 2: Resource Units Prioritisation

The objective of Task 2 – Resource Units Prioritisation is to identify high priority Resource Units, as these would be the areas where more detailed work for the rest of the steps would be the focus.

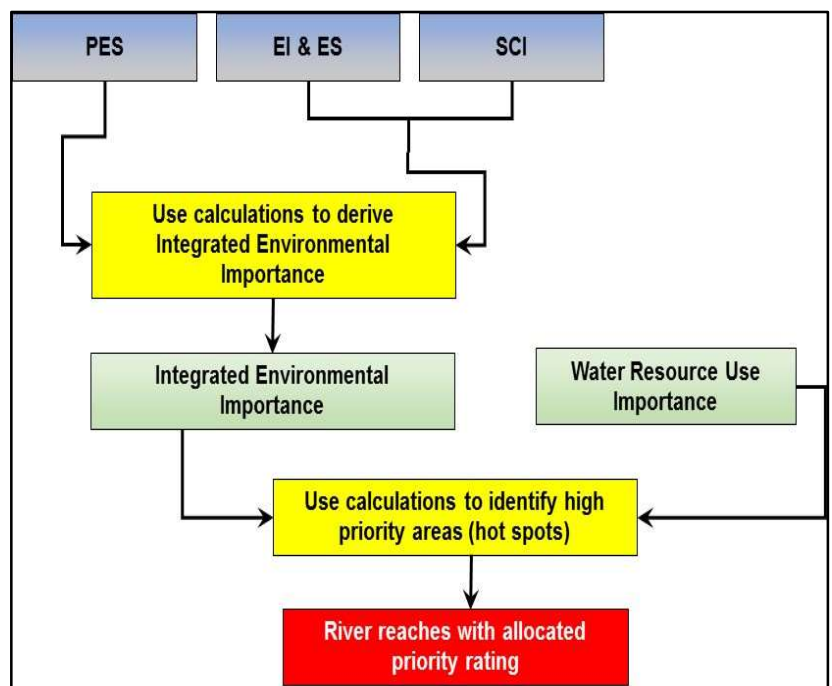
Hotspots (high or very high priority areas) indicate areas where more detailed assessments versus desktop or rapid assessments are required.

Hotspots consider areas of ecological, socio-cultural (SCI) and water resource use importance (WRUI). The process to determine hotspot areas are depicted in the diagram to the right.

Task 2 was followed for rivers, estuaries and wetlands and the results are presented below.

### a) Rivers:

The results for rivers are summarised in the Figure on page 7.





## b) Estuaries:

The Present Ecological State (PES) for relevant estuaries are provided below:

IUA	NAME	Present Ecological State (2018)	Hydrology	Hydrodynamics	Water Quality	Physical habitat	Microalgae	Macrophytes	Invertebrates	Fish	Birds
IUA W11	aMatigulu/iNyoni	B	B	B	A	A	B	B	C	B	C
IUA W13	iSiyaya	E	E	E	E	E	F	F	E	F	F
IUA W13	uMlalazi	B	C	A	B	B	B	C	B	C	B
IUA W12-c	uMhlathuze	D	B	D	E	E	C	E	D	F	E
IUA W12-c	Richards Bay	D/E	D	D	D	E	D	F	E	E	D
IUA W12-d	iNhlabane	E	C	F	E	F	D	E	E	F	E
IUA St Lucia	iMfolozi/uMsunduze	D	B	C	D	D	D	E	D	E	E
IUA St Lucia	St Lucia	D/E	B	F	D	C	E	C	E	D	D
IUA W70-b	uMgobezeleni	B	B	C	B	B	B	B	B	D	A
IUA W70-a	Kosi	A/B	B	A	A	A	A	B	C	C	A

The Integrated Environmental Importance (priority) of estuaries based on their PES, ecological importance, biodiversity / conservation importance and Ecosystem Service rating is provided in the table below.

#	NAME	Present Ecological State	Ecological Importance	Biodiversity/Conservation Importance	Combined Ecological & Conservation Importance	Ecosystem Services Value	Max (EI, ES)	Integrated Environmental Importance (IEI)
W11	aMatigulu/iNyoni	B	4	5	5	5	5	5
W13	iSiyaya	E	3	5	5	3	5	3
W13	uMlalazi	B	5	5	5	5	5	5
W12	uMhlathuze	D	5	5	5	5	5	3
W12	Richards Bay	D/E	4	5	5	5	5	5
W12	iNhlabane	E	4	1	4	5	5	3
W2	iMfolozi/uMsunduze	D	5	5	5	5	5	3
W3	St Lucia	D/E	5	5	5	5	5	5
W7	uMgobezeleni	B	3	5	5	3	5	5
W7	Kosi	A/B	5	5	5	5	5	5

## c) Wetlands

A 7-step process was followed for prioritising the resource units for wetlands, using best available data. These steps are:

- Step 1: Determine wetland PES at sub quaternary catchment scale.
- Step 2: Determine wetland ecological importance (EI) at the same scale as above.
- Step 3: Determine wetland sensitivity (ES) at the same scale as above.
- Step 4: Determine the wetland importance score (IS) by integration of EI, ES and SCI.
- Step 5: Determine integrated environmental importance of wetland/s (IEI) by integration of IS and PES.
- Step 6: Determine wetland priority by integration of IEI and WRUI.
- Step 7: Contribute to determination of High Priority Areas by integration with other components.

Priority RUs were identified by incorporating Integrated Environmental Importance and Water Resource Use Importance. RUs with Very High priority are summarised as follows:



### W1 (Mhlathuze Catchment)

- W12-3 (Nyawushane and Mhlathuze),
- W12-6 (Mhlathuze and Mtambanana, including the Mhlathuze swamp system),
- W12-8 (mostly lower reaches of Nseleni, including Nsezi and portions of the Mhlathuze floodplain),
- W12-9 (Nhlabane and Mzingwenya including lake Cubhu) and
- W12-10 (mainly Mzingazi).

### W2 (Umfolozu)

- W21-5 (mainly the White Mfolozu).

### W3 (Mkuze)

- W31-1 (Mkuze),
- W31-4 (Mkuze including Nhlhlehla Pan),
- W31-5 (Mkuze),
- W31-6 (Nsumu),
- W32-1 (Mkuze),
- W33-7 (Hluhluwe, Nyalazi and Mpate, including Nyalazi, Bushlands Pan and Hluhluwe River Vlei) and the St Lucia RU.

### W4 (Pongola)

- W41-1 (Bivane) and
- W43-1 (Ngwavuma).

### W5 (Usutu)

- W51-2 (Boesmanspruit and Assegai),
- W51-3 (Swartwater and Mhkondvo),
- W53-1 (Sandspruit and Ngwempisi),
- W54-1 (uSuthu, inkusing Coalbank and Liefgekozen, and Seganagana) and
- W55-1 (Mpumalanga pan district around Chrissiesmeer, Majosie se Vlei and Mpuluzi) and
- W57-1 (uSuthu, Banzi Pan Ndumo, Shokwe Pan).

### W7 (Kosi Estuary and Lake Sibaya)

- W70-1 (Swamanzi) and
- W70-3 (Lake Sibaya, Muzi swamps).



## Definitions

**Classification: / Water Resource Classification System (WRCS):** The Water Resource Classification System is a defined set of guidelines and procedures for determining the different classes of water resources (South African National Water Act (Act 36 of 1998) Chapter 3, Part 1, Section 2(a)). The outcome of the Classification Process will be the setting of the class, Reserve and Resource Quality Objectives by the Minister or delegated authority for every significant water resource (river, estuary, wetland and aquifer) under consideration. This class, which will range from Minimally used to Heavily used, essentially describes the desired condition of the resource, and concomitantly, the degree to which it can be utilised.

**Integrated Units of Analysis (IUAs):** The basic unit of assessment for the classification of water resources. The IUAs incorporate socio-economic zones and is defined by catchment area boundaries.

**The Reserve:** According to the NWA, the Reserve is the quantity and quality of water required to satisfy basic human needs and to protect aquatic ecosystems, in order to secure ecological sustainable management of significant water resources.

The Reserve, therefore, consists of two distinct components: (1) basic human needs and (2) the EWRs.

The basic human needs provide for the essential needs of people that are dependent on the water resource for their livelihood and who are not supplied with water through formal reticulation systems. The ecological component of the Reserve (EWR) relates to the quantity, quality and variable flow of water required to protect the aquatic ecosystem of the water resource.

**Ecological Water Requirements (EWRs):** 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. The EWRs as determined during preliminary Reserve studies, will be applied in this study. These preliminary EWRs are finalized during the Classification process.

**Ecological Water Requirement Sites:** EWR sites are set at specific points on the river. These sites provide sufficient indicators for the specialists to assess environmental flows and information about the variety of conditions in a river reach. An EWR site consists of a length of river which may consist of various cross-sections for both hydraulic and ecological purposes.

**Resource Units:** RUs are delineated during an Ecological Reserve determination study, as each will warrant its own specification of the Reserve, and the geographic boundaries of each must be clearly delineated. These sections of a river frequently have different natural flow patterns, react differently to stress according to their sensitivity, and require individual specifications of the Reserve appropriate for that reach. RUs are nested within Integrated Units of Analysis (IUAs) and may contain an Ecological Water Requirement site.

**Resource Quality Objectives:** RQOs provide numerical and narrative descriptors of quality, quantity, habitat and biotic conditions as a basis from which management actions can be implemented for the sustainable use of all water resources.

## THE WAY FORWARD

This Information Document provides a summary of the results of Task 1 and Task 2 of this study. The following reports were drafted and are being reviewed for comments by the PMC and PSC members. Once finalised, these reports will be published on the DWS website.

WEM/WMA3/4/00/CON/CLA/0222	Classification of Significant Water Resources and Resource Quality Objectives for Water Resources in the Usutu to Mhlathuze Catchments: Status Quo and Delineation of Integrated Units of Analysis and Resource Unit Report
WEM/WMA3/4/00/CON/CLA/0322	<b>Classification of Significant Water Resources and Resource Quality Objectives for Water Resources in the Usutu to Mhlathuze Catchments: Resource Units Prioritisation Report</b>

The next step in the study, Step / Task 3 would be to quantify Basic Human Needs and Ecological Water Requirements (EWRs).