



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA



Determination of Ecological Water Requirements for Surface Water (Rivers, Estuaries and Wetlands) and Groundwater in the Lower Orange WMA: WP10974


7 June 2017

ESTUARY ECOLOGICAL SPECIFICATIONS AND MONITORING

Lara van Niekerk: CSIR

WATER IS LIFE, SANITATION IS DIGNITY



ESTUARY ECOSPECS			
Component	PES	PERC EcoSpecs	
Hydrology	D	D	
Hydrodynamics	C	B?	
Water quality	D	C	
Physical habitat	B/C	B	
Microalgae	D/E	D	
Macrophytes	D	C	
Invertebrates	D	B	
Fish	D	C	
Birds	E/F	D	
ESTUARY	D	C/D	

ESTUARY ECOSPECS

How will we know if we are achieving the PERC

How will we know if we are getting there?

- Mouth will close for 2 – 4 times in 10 years
- Flow will not be confined to just part of the estuarine channels for longer than 2 to 3 months
- Saltmarshes will be flushed by tide, back flooding and river floods to reduce soil salinity
- Decrease in reed and algae growth
- Safe nursery for estuarine dependant fish
- Birds will remain stable or increase in numbers

MONITORING PROGRAMME

Specialist studies required to inform the baseline are:

- Estuarine nutrient assessment programme
- Flow Requirements of the nearshore marine
- Detailed Topographical/Bathymetry study of the Orange Estuary at low flows to determine at what flow ranges the habitat become unsuitable for fish.

ALL FEEDS INTO ESTUARY MANAGEMENT PLAN



ORANGE ESTUARY LEVEL 1 MONITORING

- Hydrology
- Hydrodynamics
- Water quality

ORANGE ESTUARY LEVEL 2 MONITORING

- Sediment dynamics (3yrs)
- Microalgae & Macrophytes (3 yrs)
- Invertebrates & Fish (3 yrs: Sum & Win)
- Birds (Annually: Sum & Win)



QUESTIONS FOR CLARIFICATION