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NATIONAL DEVELOPMENT PLAN
Our Future - make it work

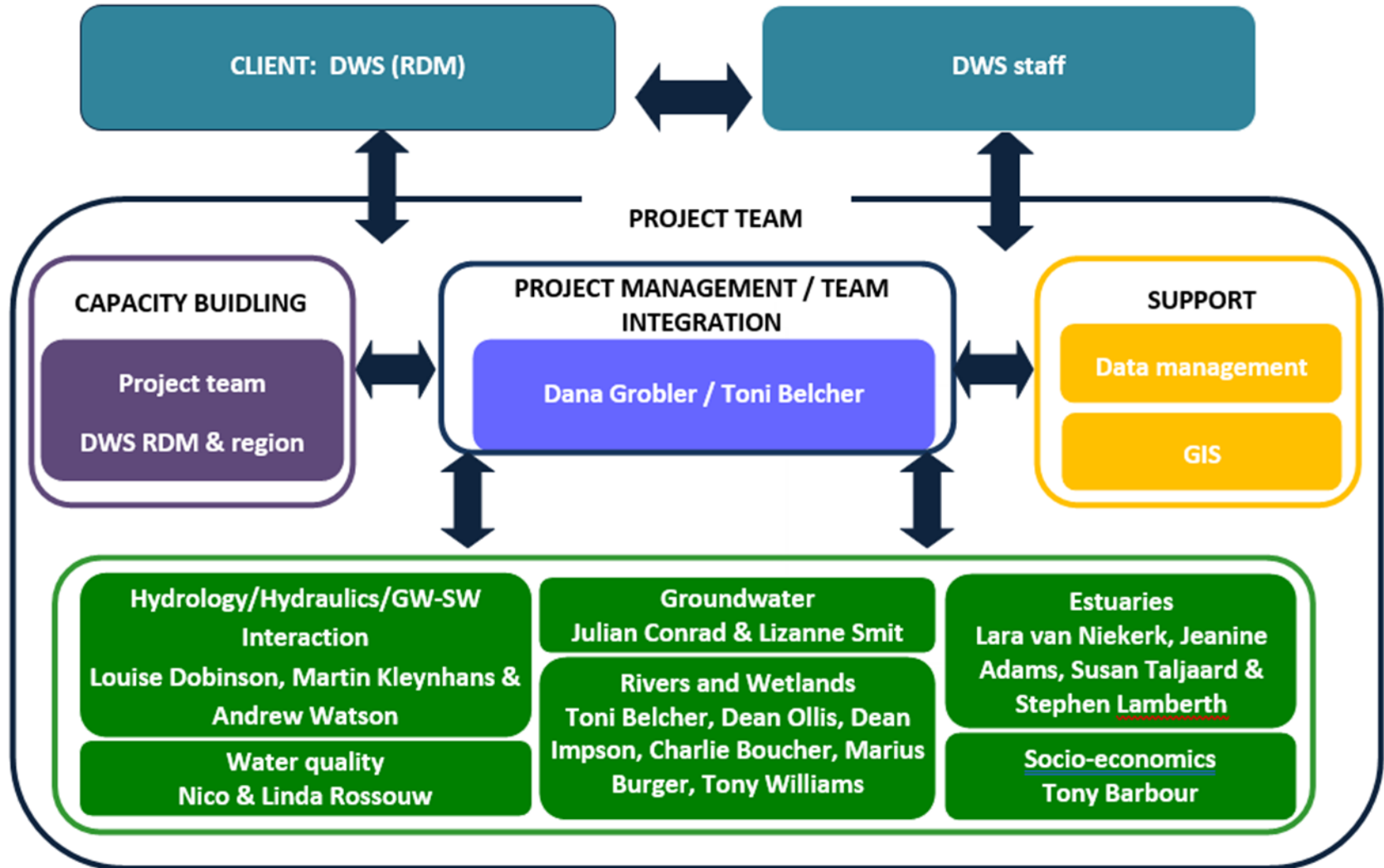
Reserve determination study for selected Surface Water, Groundwater, Estuaries and Wetlands in the F60 and G30 Catchment within the Berg-Olifants Water Management Area

PSC Meeting on MS Teams 21 July 2022



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The Project Team:



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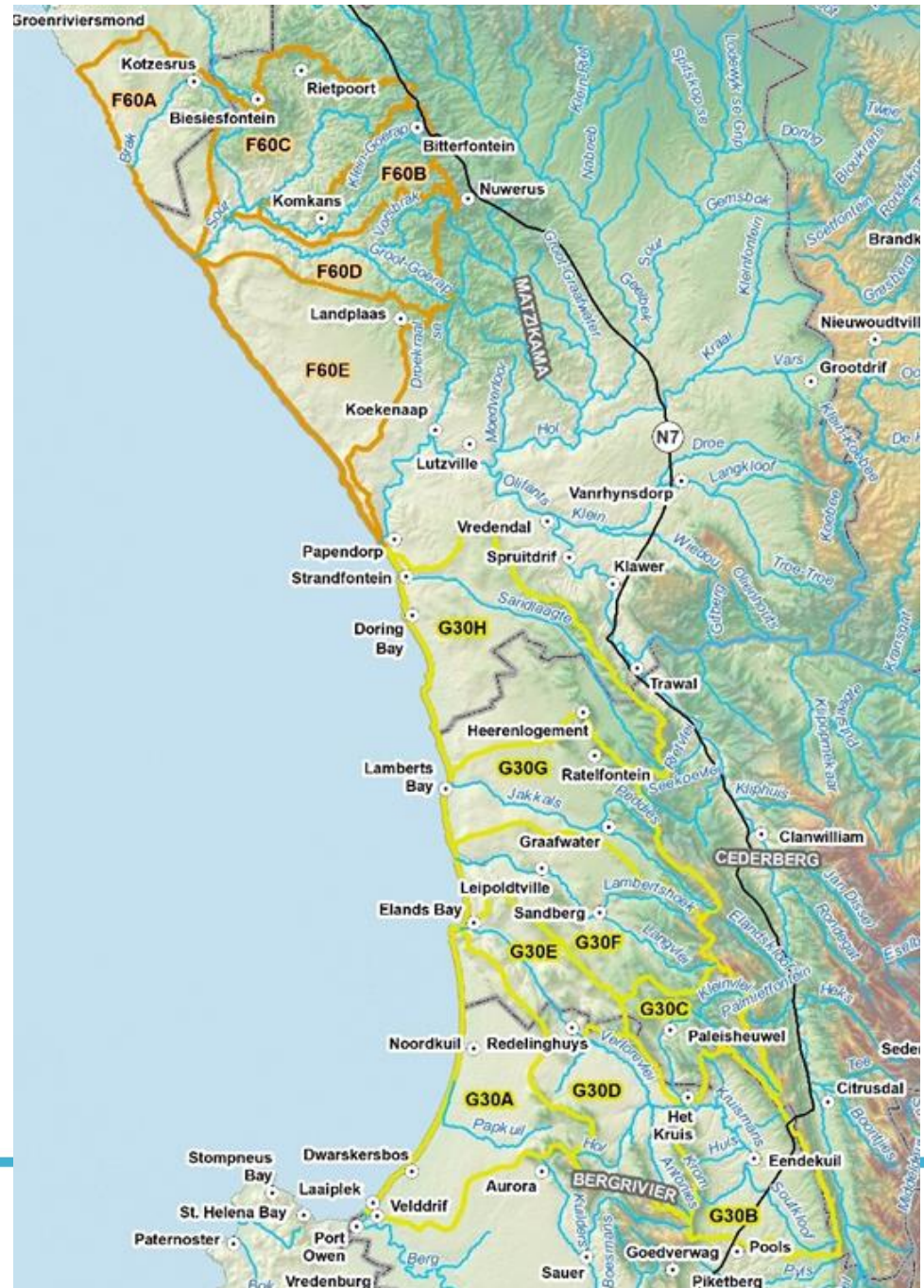
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Study Area

- The study area comprises of two Tertiary Catchments:
 - The G30 Tertiary Catchment (Sandveld) comprises the seasonal Papkuil, Verlorenvlei, Langvlei, Jakkals and Sandlaagte rivers which flow to the south of the Olifants River Estuary;
 - The F60 Tertiary Catchment lies immediately north of the Olifants River Estuary and comprises of the Groot-Goerap/Sout and Brak Rivers.
- There are three focus areas:
 - Verlorevlei Catchment
 - Remainder of G30 Tertiary
 - F60 Tertiary



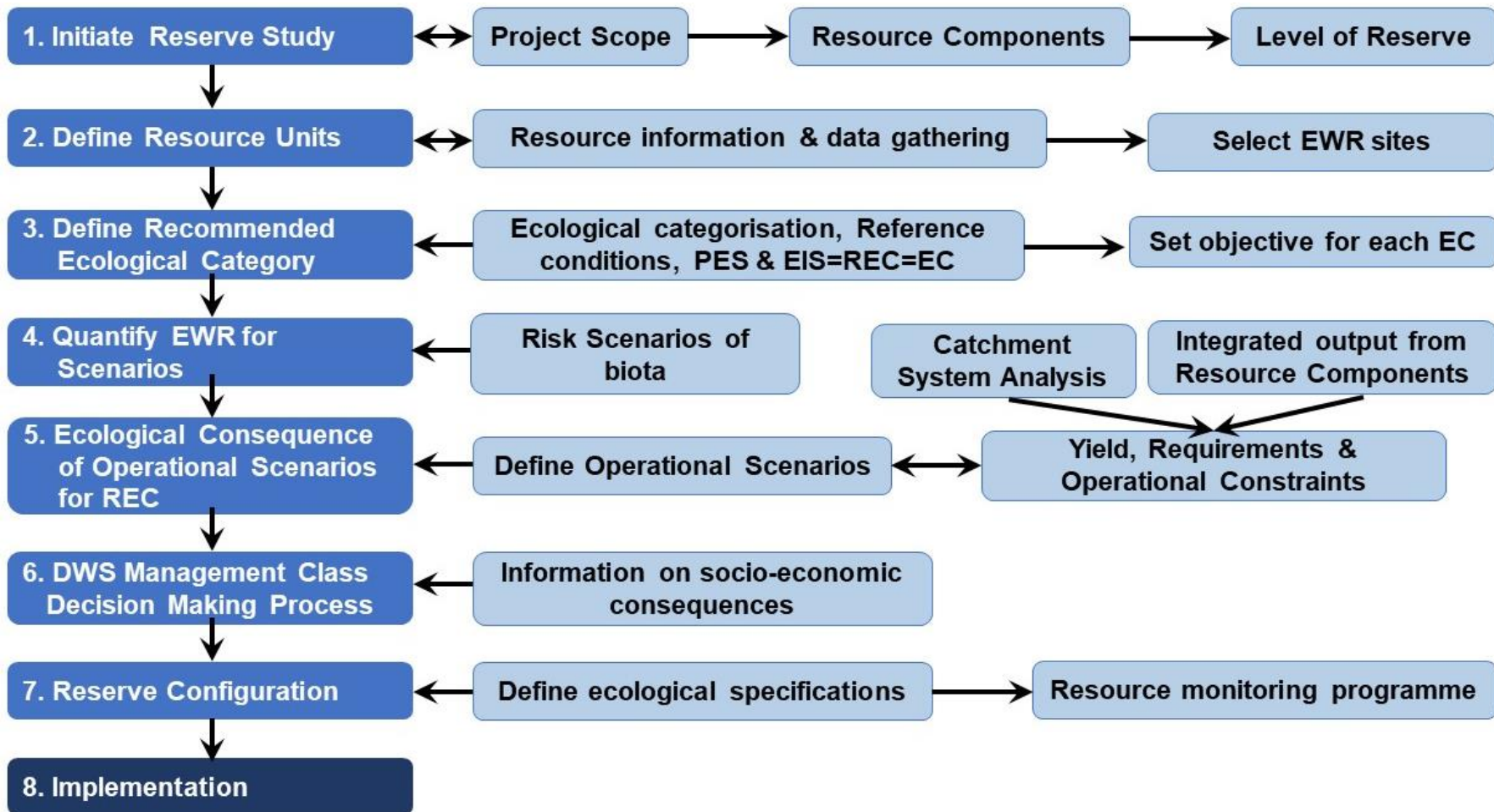
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The Reserve Determination Process



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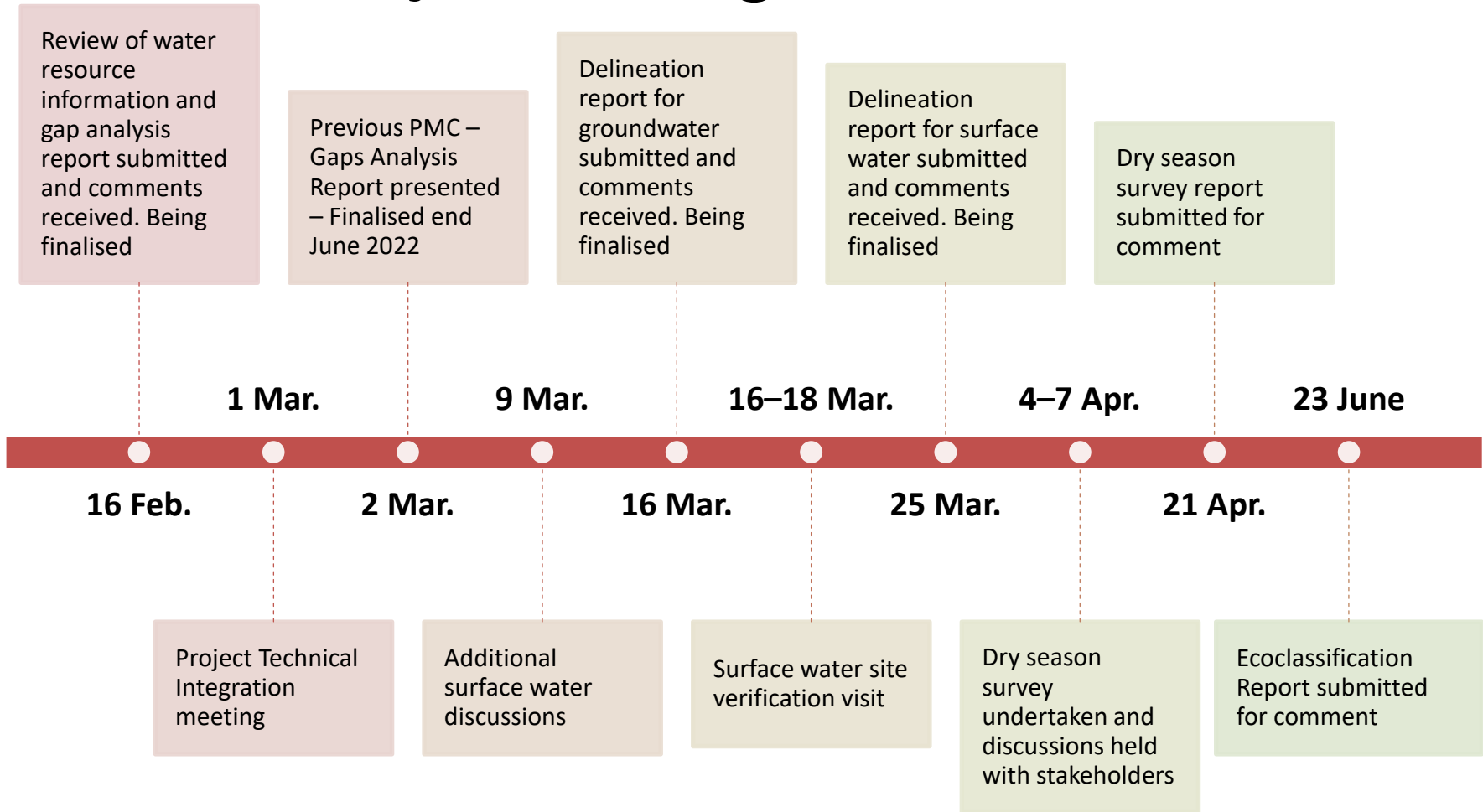


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Project Progress:



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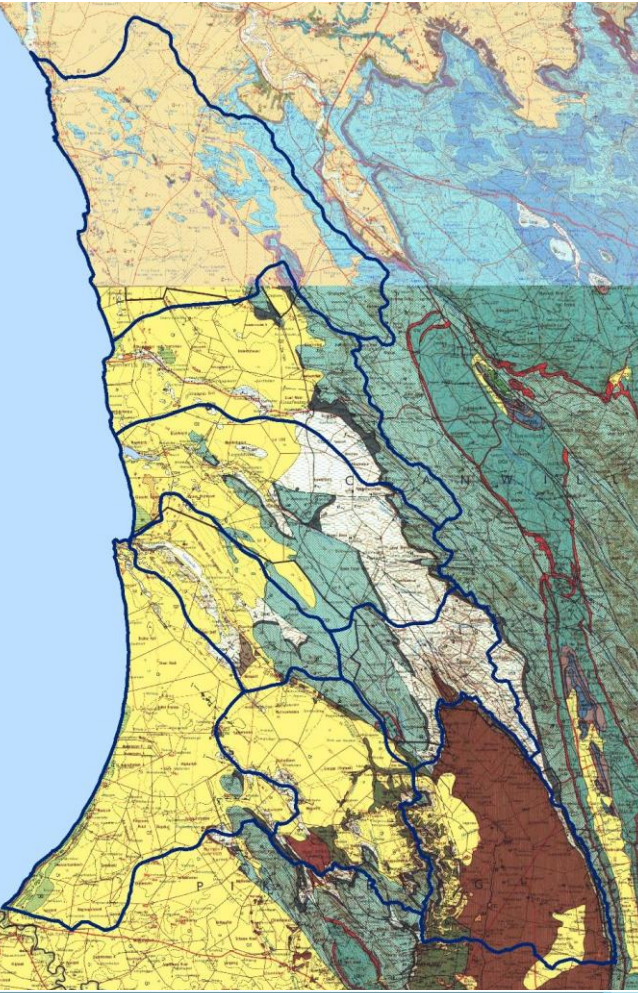


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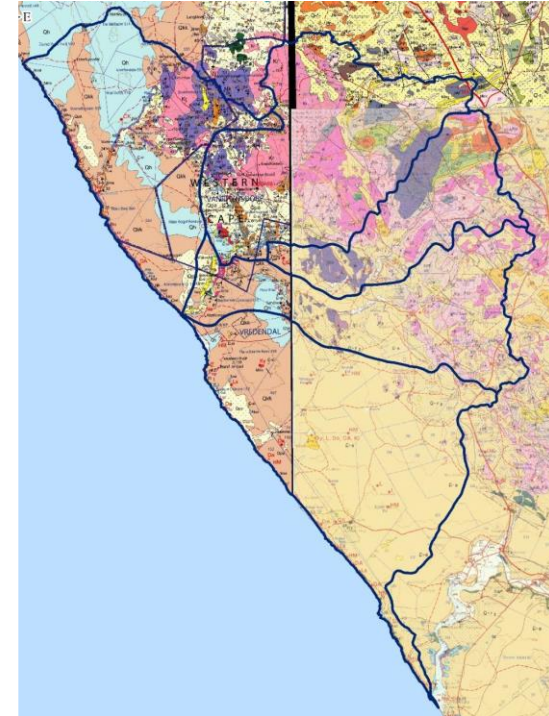


Delineation Report for Groundwater



Groundwater Resource Units:

- Geology
- Rainfall
- Hydrology / Surface water
- water levels
- Water quality
- Type of aquifer
- Existing knowledge and data
- Water use
- Existing Reserve and RQOs



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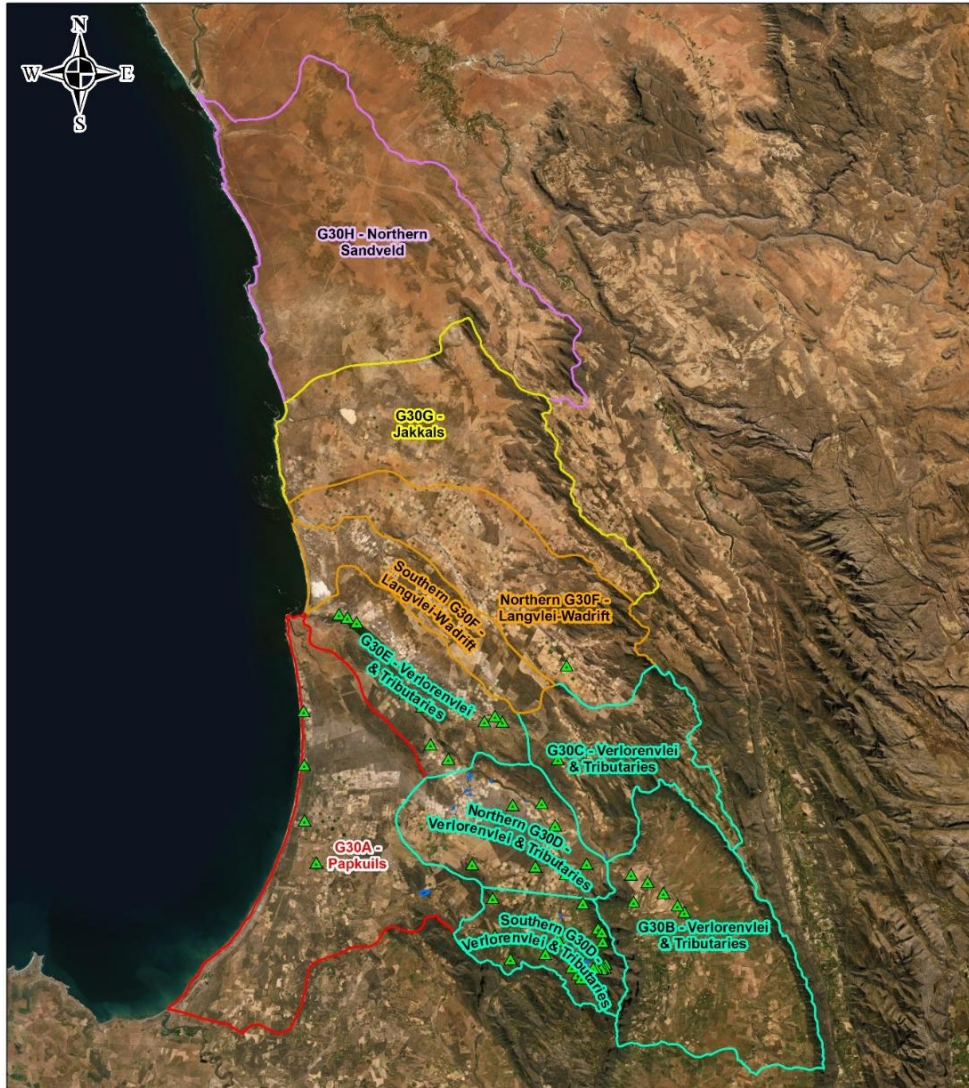


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Delineation Report for Groundwater



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Delineation Report for Surface Water

- Rivers
- Wetlands
- Estuaries

- Hydrological
- Water Quality
- Biota
- Land and Water Use

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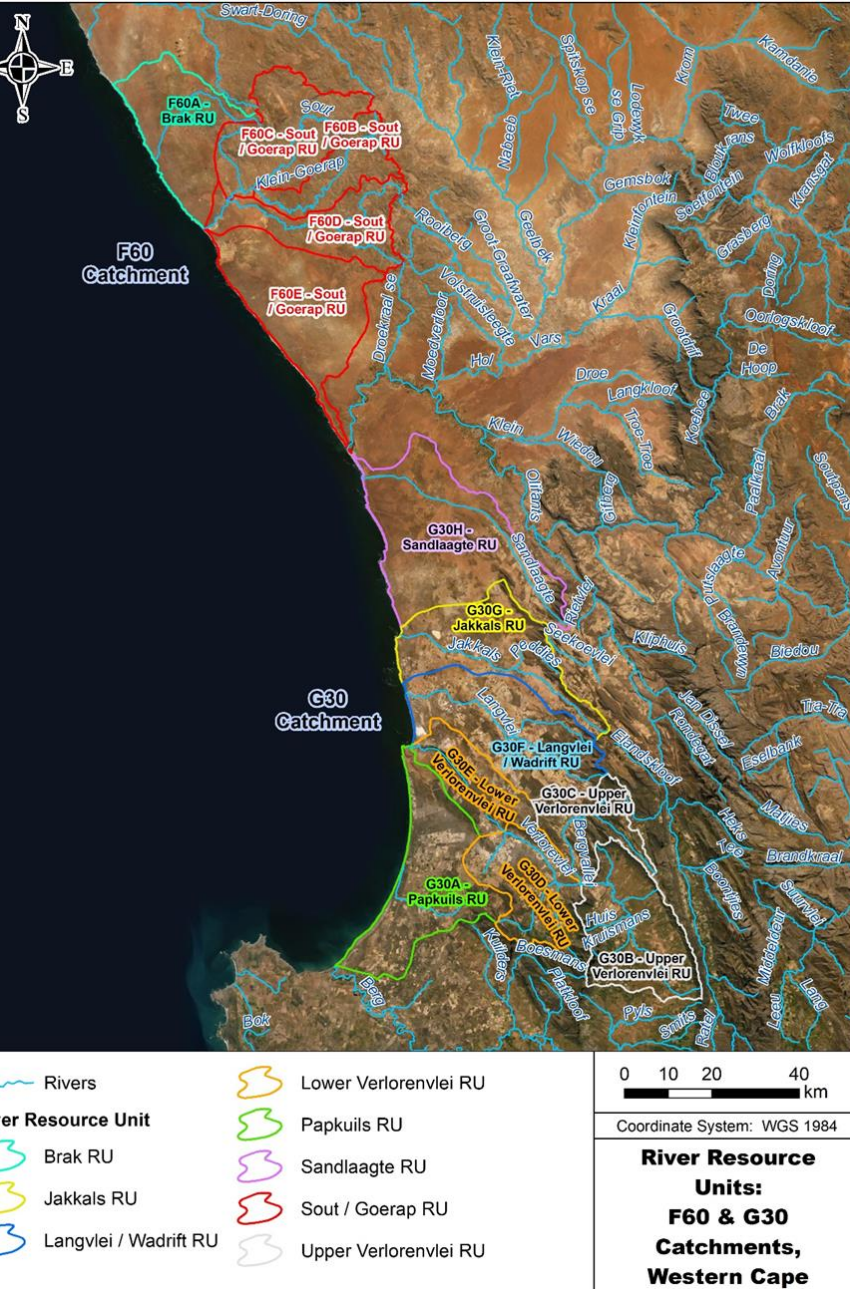
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Delineation Report for Surface Water

Rivers Resource Units:

- Quaternary
- Ecoregions
- Hydrological Index
- Geomorphology
- Bioregion
- Geology
- Landuse
- PES
- EI & ES
- Reserve Regions



Delineation Report for Surface Water

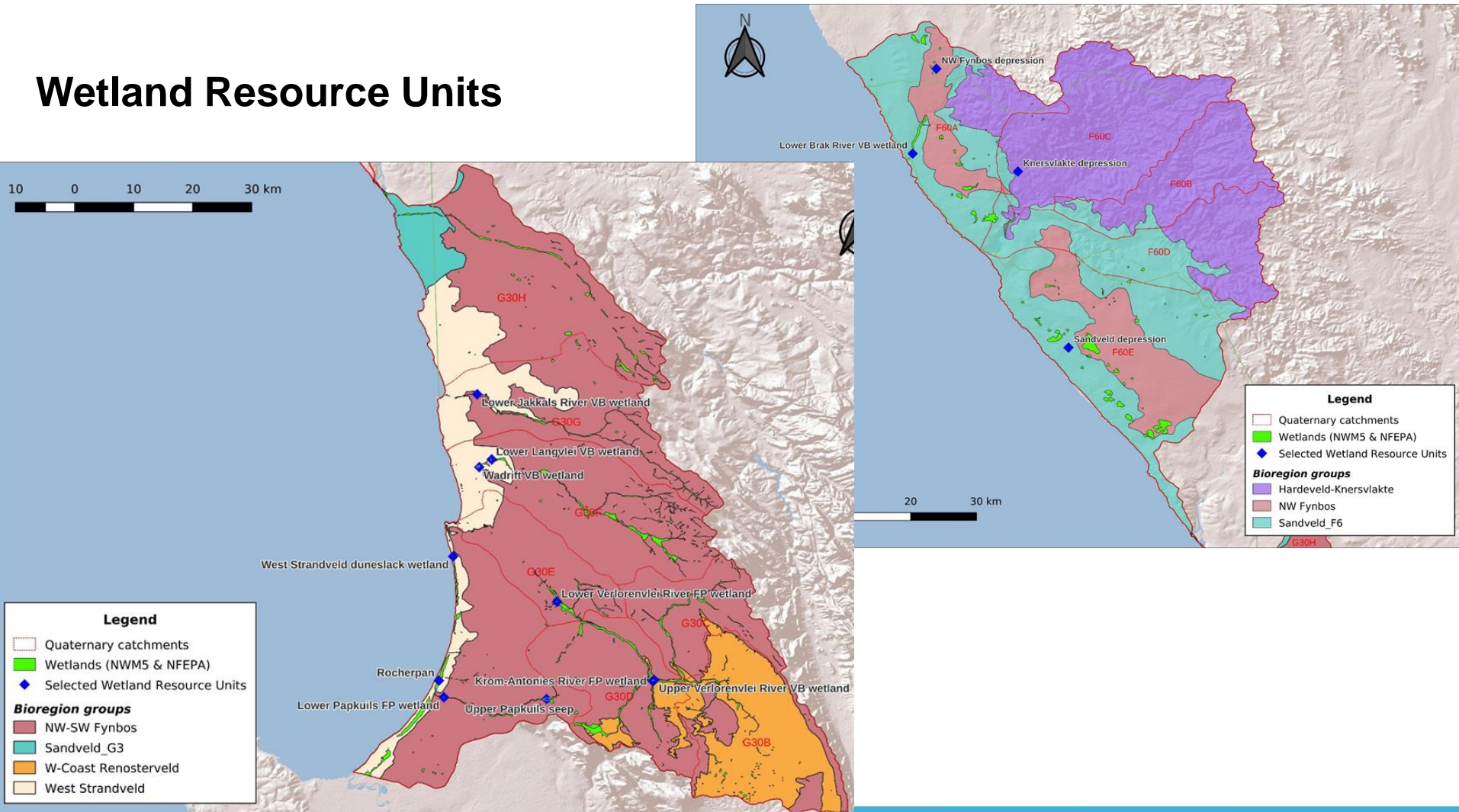
Tertiary catchment	Quaternary catchment	Wetland name	RU	Site	Bioregion group	HGM type	PES_NFEPA (FEPA status)	PES_NB 8 (ETS)
F60	F60A	Lower Brak River VB wetland	Brak VB	Above EFZ on Farm RE/559 Strandfontein	Sandveld_F6	CVB	A/B (non-FEPA)	- (CR)
	F60A	NW Fynbos depression	Fynbos	On Farm RE/641 Nuwe-Begin	NW Fynbos	DEP	A/B (FEPA)	A/B (EN)
	F60C	Knervlakte depression	Knervlakte	On Farm RE/145 Adoonsvlei	Hardeveld-Knervlakte	DEP	A/B (FEPA)	A/B (LC)
	F60E	Sandveld depression	Sandveld	On Ptn 18/20 of Farm 158 Elsie Erasmus Kloof	Sandveld_F6	DEP	C (non-FEPA)	A/B (CR)
G30	G30G	Lower Jakkals River VB wetland	Jakkals VB	Above EFZ on Ptn 3 of Farm 88 Kookfontein	NW-SW Fynbos	CVB	C (FEPA)	D/E/F (CR)
	G30F	Lower Langvlei VB wetland	Langvlei VB	On Ptn 23 of Farm 226 Branswacht	West Strandveld	UVB	C (FEPA)	D/E/F (CR)
	G30F	Wadrikt VB wetland (Lower Langvlei)	Wadrikt VB	On Farm RE/230 Wagendrikt	West Strandveld	UVB	C (FEPA)	- (CR)
	G30D	Upper Verlorenvlei River VB wetland	Verlorenvlei VB	Above R366 bridge on Ptn 1 of Farm 42d Eenheid	W-Coast Renosterveld	CVB	C (FEPA)	D/E/F (CR)
	G30D	Krom-Antonies River FP wetland	Krom-Antonies FP	u/s Verlorenvlei R confl. on Farm RE/40 Goergap	W-Coast Renosterveld	FP	C (FEPA)	D/E/F (CR)
	G30E	Lower Verlorenvlei River FP wetland	Verlorenvlei FP	Edge of EFZ on Ptn 4 of Farm 4 Wittedrift	NW-SW Fynbos	FP	C (FEPA)	- (CR)
	G30A	West Strandveld duneslack wetland	West Strandveld	Above tar road on Ptn 27 of Farm 277	West Strandveld	DEP	C (FEPA)	D/E/F (CR)
	G30A	Rocherpan	Rocherpan	Within Nature Reserve on Farm 272	West Strandveld	DEP	A/B (FEPA)	D/E/F (CR)
	G30A	Lower Papkuils FP wetland	Papkuils FP	Above railway line on Ptn 1 of Farm 30 Bookram	NW-SW Fynbos	FP	C (FEPA)	D/E/F (CR)
	G30A	Upper Papkuils seep	Papkuils seep	On Ptn 3 of Farm 18 Rietfontein	NW-SW Fynbos	SEEP	C (FEPA)	D/E/F (VU)

Wetland Resource Units:

- NFEPA and NWM5 mapping
- WCBSP mapping
- Bioregions and Bioregion Groups
- HGM type
- Significance (>1ha)
- Threat status
- Water use target areas
- Ecosystem services
- PES
- Springs and seepage areas

Delineation Report for Surface Water

Wetland Resource Units



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Delineation Report for Surface Water

Estuary Resource Units:

- Historical extent
- Upstream boundaries / tidal extent
- Lateral boundaries – contours and DEM
- Estuarine Functional Zone and habitats



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Dry Season Survey Report

- Water Quality Survey 3-4 April 2022
- Rivers, Wetland and Vegetation Survey 3-7 April 2022 (Dry Season)
- Estuary Assessment November 2021 for Verlorenvlei, Jakkals, Wadrif



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Dry Season Survey Report

- Surveys at selected EWR sites
- Hybrid river wetland assessments for 6 sites
- Wetland assessments at 3 additional sites

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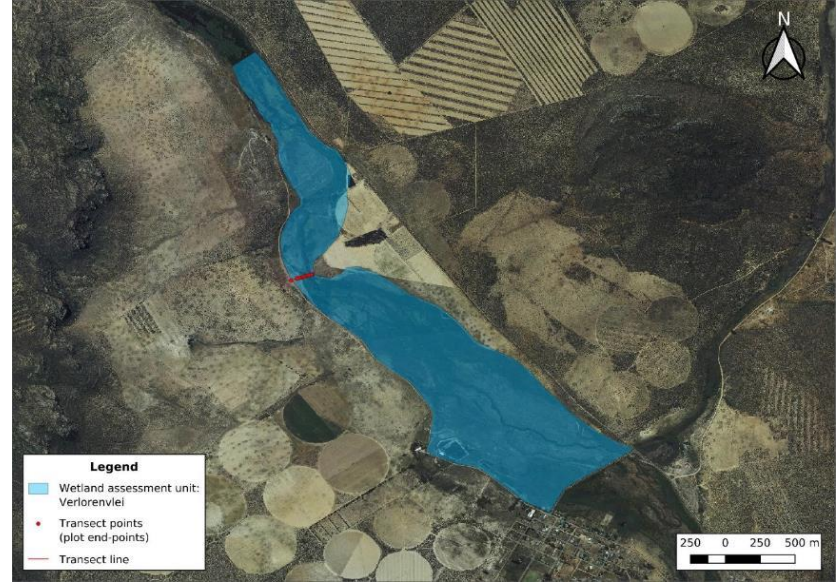


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Dry Season Survey Report



Dry Season Survey Report



Table 1. Alphabetic Floristic data for VERLORENVLEI - WITTEDRIF, Western Sandveld Wetlands

Sample no. [VW=Verlorenvlei Wittedrif]	VWV5	VWV4	VWV3	VWV2	VWV1	VWV0	VWV1	VWV2	VWV3	VWV4	VWV5	VWV6	VWV7	VWV8	No. of sample plots =
Date	2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08	14
Grid ref plot start peg from Low point to Outer edge (South)	32°27'59.87"S	32°27'59.95"S	32°27'59.01"S	32°27'59.16"S	32°27'59.23"S	32°27'59.29"S	32°27'59.35"S	32°27'59.42"S	32°27'59.53"S	32°27'59.69"S	32°27'59.79"S	32°27'59.86"S	32°27'59.86"S	32°27'59.86"S	
Grid ref plot start peg from Low point to Outer edge (East)	18°31'4.56"E	18°31'4.79"E	18°31'4.46"E	18°31'3.94"E	18°31'3.54"E	18°31'3.37"E	18°31'3.15"E	18°31'2.90"E	18°31'2.59"E	18°31'2.13"E	18°31'1.70"E	18°31'1.46"E	18°31'1.35"E	18°31'0.75"E	
Plot length	0.93	4.37	7.77	15.35	9.1	10.2	7.88	7.45	14.3	10.35	6.5	4.35	17.05	44.1	
Moisture status (I = inundated, free water; W = wet, M = moist, D = Dry, S = seasonal condition)	SD	SM	SW	SM	SW	SI	SW	SW	SM	SD	SM	SM	SD	D	
Photograph number															
Habitat	Slope step, Path, Grazed.	Steep cut bank, Grazed.	Side channel, Grazed, Trampled.	Channel with Artificially raised air	Bed often flooded, Heavy grazing.	Bed often flooded, Heavy grazing.	Bed often flooded, Heavy grazing.	Channel side	Flattish regular overflowstep	Raised area, Added bed material	Slight dip at higher cover/flowstep	Channel side	Upper flood flats	Back floodplain.	
No. of species in sample plot	4	4	5	4	2	1	3	4	3	3	5	3	5	5	No. of species in area =
Taxon (* = Listed in RDB)															No. of occurrence
<i>Atriplex semibaccata</i> R.Br.	5	1						5				2	1		5
<i>Bolboschoenus maritimus</i> (L.) Palla		20	30				15	15	15						6
<i>Cotula coronopifolia</i> L.		5	5	1							<1				3
<i>Cyperus textilis</i> Thunb.		60	50	30	15		75	15	25	20	65				9
<i>Drosanthemum floribundum</i> (Haw.) Schvantes														1	1
<i>Exomis microphylla</i> (Thunb.) Aellen var. <i>axynoides</i> (Fenzl)	1														1
<i>Frankenia repens</i> (P.J.Bergius) Fourc.										1		5	1		3
<i>Hordeum capense</i> Thunb.								5						1	2
<i>Isoplepis antarctica</i> (L.) Roem. & Schult.			5								<1		<1		2
<i>Paspalum distichum</i> L.				10	30	10									3
<i>Pentstemon densifolia</i> (Nees) Stapf	5														1
<i>Phragmites australis</i> (Cav.) Steud.			5						40						3
<i>Rumex crispus</i> L. *		<1		15											1
<i>Sarcocornia natalensis</i> (Bunge ex Ung.-Stemb.) A.J.Scott						1									1
<i>Sarcocornia pillansii</i> (Moss) A.J.Scott										40		5	60	60	4
<i>Senecio burchellii</i> DC.														2	1
<i>Sporobolus virginicus</i> (L.) Kunth	20										1		2	<1	4

➤ Soil, water quality, macroinvertebrates

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Other Discussions and Activities

- Technical Integration Workshop
- Various Stakeholder Engagements
- Obtained rainfall data
- Surveying of EWR sites
- Groundwater data collection and engagement with F60 water users
- Discussion on Use of Water User Data
- Hydrological Integration Discussion



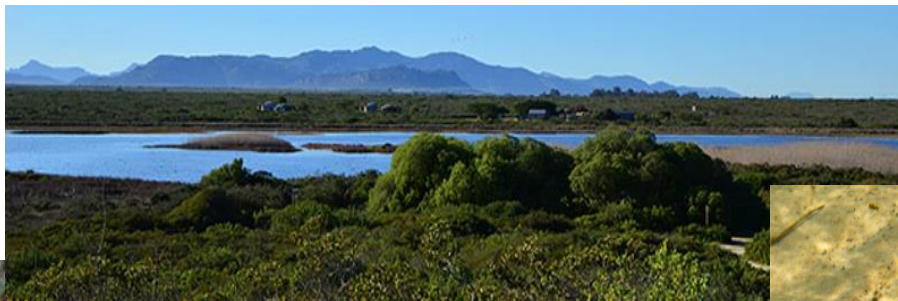
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THANK YOU



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