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South African National Biodiversity Institute

METADATA REPORT

DATA IDENTIFICATION:	
Title	NBA2018_Rivers
Description (detailed)	<p>NBA 2018 Rivers assessment layer</p> <p>This river lines data set is part of the South African Inventory of Inland Aquatic Ecosystems (SAIIAE) which was released with the NBA 2018, and includes the condition, Ecosystem Threat Status and Ecosystem Protection Level information.</p>
Purpose	<p>This GIS layer summarizes the river condition, river ecosystem types, flagship and free-flowing river information</p> <p>This is a second update of the NBA rivers layer which was issued with the launch of the NBA 2018, and includes the condition, Ecosystem Threat Status (ETS) and Ecosystem Protection Level (EPL) information for the rivers.</p>
Status	Completed
Maintenance and update frequency	Completed
Topic category	Inland waters
Lineage	<p>The GIS layer of origin is the 1:500 000 rivers data layer that DWA has coded for geomorphological zonations. CSIR subsequently used this layer to add information. 97 coastal rivers were added from the Chief Directorate Surveys and Mapping's (CDSM) 1:50 000 rivers GIS layer. Add-in rivers were based on missing South African estuaries along the coast line. In the regional review workshops, experts were asked to highlight any other rivers of conservation significance and the layer was updated.</p> <p>Free-flowing rivers were expertly reviewed and updated during the NFEPA project in 2011. The PES of rivers was updated during 2016/17, which included the free-flowing and flagship rivers. The artificial wetland was also updated during the NBA 2018 process and together with the DWS dams_2016 layer the free-flowing and flagship rivers were reassessed according to the set criteria above. Where dams and artificial wetlands intersected with the free-flowing and flagship rivers and condition change occurred. River condition in free-flowing rivers also changed after the confluence with a degraded tributary. In these cases the free-flowing/flagship rivers' PES status was updated to reflect the change resulting in some free-flowing/flagship rivers being removed from the list identified during the NFEPA process. However, where the free-flowing river was identified in the expert consultation process, regardless of the "C" PES condition, the river remained free-flowing/Flagship. Where no river condition changes were recorded the free-flowing/Flagship rivers remained unchanged.</p>

Citation	<p>DWS. 2014. A desktop assessment of the present ecological state, ecological importance and ecological sensitivity per subquaternary reaches for secondary catchments in South Africa. Department of Water and Sanitation. Compiled by RQIS-RDM. Available at: http://www.dwa.gov.za/iwqs/rhp/eco/peseismodel.aspx</p> <p>Skowno, A.L., Poole, C.J., Raimondo, D.C., Sink, K.J., Van Deventer, H., Van Niekerk, L., Harris, L.R., Smith-Adao, L.B., Tolley, K.A., Zengeya, T.A., Foden, W.B., Midgley, G.F. & Driver, A. 2019. National Biodiversity Assessment 2018: The status of South Africa's ecosystems and biodiversity. Synthesis Report. South African National Biodiversity Institute, an entity of the Department of Environment, Forestry and Fisheries, Pretoria. pp. 1–214.</p> <p>Van Deventer, H., Smith-Adao, L., Collins, N.B., Grenfell, M., Grundling, A., Grundling, P-L., Impson, D., Job, N., Lötter, M., Ollis, D., Petersen, C., Scherman, P., Sieben, E., Snaddon, K., Tererai, F. & Van der Colff, D. 2019. South African National Biodiversity Assessment 2018: Technical Report. Volume 2b: Inland Aquatic (Freshwater) Realm. CSIR report number CSIR/NRE/ECOS/IR/2019/0004/A. South African National Biodiversity Institute, Pretoria. http://hdl.handle.net/20.500.12143/6230.</p>
Keywords	Free-flowing rivers, Flagship rivers, Present ecological state, National Biodiversity Assessment 2018, inland aquatic ecosystems.

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RESOURCE CONSTRAINTS:

Access constraints	There are no access limitations for this item.
Other restrictions	none
Use constraints	There are no use limitations for this item.
Other restrictions	none

SPATIAL RESOLUTION:

Spatial representation type	Geodatabase, Vector
Equivalent scale - Denominator	1:500 000;

COORDINATE REFERENCE SYSTEM:

Projected/Geographic coordinate system	WGS 1984 Projection: Albers False_Easting: 0.0 False_Northing: 0.0 Central_Meridian: 25.0 Standard_Parallel_1: -24.0 Standard_Parallel_2: -33.0 Latitude_Of_Origin: 0.0 Linear Unit: Meter (1.0)
Geographic bounding box - East bound longitude	33.498783
Geographic bounding box - North bound latitude	-21.956894
Geographic bounding box - South bound latitude	-34.906802
Geographic bounding box - West bound longitude	15.927209

TEMPORAL EXTENT (time period covered by the content of the dataset):

Temporal extent -	2018
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Begin date	
Temporal extent - End date	2018
Identification info	NBA 2018 Rivers map

ONLINE RESOURCE (additional resources available online):		
Description	South African Inventory of Inland Aquatic Ecosystems (SAIIAE). Volume 2a	South African National Biodiversity Assessment 2018: Technical Report. Volume 2b: Inland Aquatic (Freshwater) Realm
Linkage	http://hdl.handle.net/20.500.12143/6462	http://hdl.handle.net/20.500.12143/6230
Name	Volume 2a: SA Inventory of Inland Aquatic Ecosystems (SAIIAE).	Volume 2b: Inland Aquatic (Freshwater) Realm
Protocol		

LEGEND PROPERTIES:	
Classification	See attribute table

DETAILED NOTES:	
Supplemental information	For the NBA 2018 the PES of rivers was updated during 2011/17, which included the free-flowing and flagship rivers. The artificial wetland was also updated during the NBA 2018 process and together with the DWS dams_2016 layer the free-flowing and flagship rivers were reassessed according to the set criteria above. Where dams and artificial wetlands intersected with the free-flowing and flagship rivers, condition change occurred. River condition in free-flowing rivers also changed after the confluence with a degraded tributary. In these cases, the free-flowing/flagship rivers' PES status was updated to reflect the change resulting in some free-flowing/flagship rivers being removed from the list identified during the NFEPA process (Van Deventer, et al., 2018; Skowno et al., 2018).

The attribute field data can also be provided as a MS Excel spreadsheet and uploaded as an online resource.

ATTRIBUTE FIELDS		
Field Name	Description	Alias
OBJECTID	System generated field, object number	
LENGTH	River Length (m)	
REACHCODE	Code for reach	
UNIT_ID	Planning unit identifier. All sub-quaternaries have a unique identifier. This identifier also serves as a look-up identifier for each the biodiversity features	

	contained in each river and wetland FEPA and fish support area. This look-up table is an excel spreadsheet that is available on BGIS or the NFEPA data DVD that accompanies the NFEPA atlas.	
REACHNUM	Number for reach. This distinguishes connected river reaches within a primary river drainage system	
ORDER_	River order	
MAINSTEM	Mainstem = 1 is a quaternary mainstem; the rest of the 1:500,000 rivers are tributaries that are nested within quaternary catchments	
NAME	Name of river as per the 2007 version of the DWA 500K rivers generated by Mike Silberbauer	
L1_ECOREGN	Dominant Level 1 Ecoregion within the sub-quaternary catchment	
L2_ECOREGN	Dominant Level 2 Ecoregion within the sub-quaternary catchment	
FLOW	Flow variability where "P" = permanent or seasonal; "E" = ephemeral	
GEOZONE	<p>Geomorphic zone as calculated per slope category of Rowntree and Wadeson (1999)</p> <ul style="list-style-type: none"> • A = Mountain Headwater Stream • B = Mountain Stream • C = Transitional Zone • D = Upper Foothills • E = Lower Foothills • F = Lowland River • Z = Unclassified (Subsequently Classified In Gzlump) 	
GZLUMP	<p>Lumped geomorphic zone used by NFEPA</p> <ul style="list-style-type: none"> • U (Upper Foothills) = Lumping of Classes C and D • L (Lower Foothills) = Class E • F (Lowland River) = Class F 	
RIVTYPE	River type used by NFEPA which comprises the level 1 ecoregion number followed by the flow (N= NOT Permanent/Flashy; P = Permanent or Seasonal), followed by the geomorphological zone (M = Mountain Stream; U = Upper Foothills; L= Lower Foothills; F = Lowland River)	
PES1999	<p>DWA's present ecological state 1999 with desktop modification</p> <p>A = Unmodified, Natural B = Largely Natural with few Modifications C = Moderately Modified D = Largely Modified E = Seriously Modified F = Critically/Extremely Modified</p>	
RIVCON	<p>River condition used by NFEPA A or B is considered intact and able to contribute towards river ecosystem biodiversity targets.</p> <p>A = Unmodified, Natural</p>	

	<p>B = Largely Natural with few Modifications AB = A or B Above C = Moderately Modified D = Largely Modified E = Seriously Modified F = Critically/Extremely Modified EF = E or F Above Z = Tributary condition modelled as not intact, according to natural land cover</p>	
FFRID	Free flowing river identification. each system and its tributaries has the same identifier.	
FFRREGION	The lumped ecoregion into which free-flowing rivers fall, used to achieve representation of free-flowing rivers across the country	
FFRFLAGSHIP	<p>Flagship free-flowing rivers as identified through an expert review process</p> <p>1 = Flagship River 0 = Not a Flagship River</p>	
PES_2018	NBA 2018 Ecological condition category. The process involved using the Department of Water and Sanitation (DWS, 2014) Present Ecological State/Ecological Importance/Ecological Sensitivity (PES/EI/ES), also referred to as PES/EIS data, which included mainstems and tributaries at a sub-quadernary level. These desktop data were updated with data that became available between 2011 and 2017 from Reserve or Ecological Water Requirement (EWR) and Water Resource Classification System (WRCS) studies.	
NBA2018ETS	Ecosystem threat status (ETS) of river ecosystem types: this was based on the extent to which each river ecosystem type had been altered from its natural condition. Ecosystem types are categorised as critically endangered (CR), endangered (EN), vulnerable (VU) or least concern (LC), with CR, EN and VU ecosystem types collectively referred to as 'threatened' (Van Deventer, et al., 2018; Skowno et al., 2018).	
NBA2018EPL	Ecosystem protection level (EPL) of river ecosystem types: river ecosystem types in protected areas needed to be in good condition rivers (A or B ecological category) to be considered as protected. Well protected, moderately protected, poorly protected river ecosystem types have at least 100%, 50%, 5% of their biodiversity target in protected areas and in natural or near-natural ecological condition; not protected river ecosystem types have < 5% (Van Deventer, et al., 2018; Skowno et al., 2018).	
FFRID_2018	Free-flowing river ID. each system and its tributaries has the same identifier. Where ID = 0 not a free-flowing river; all other numerics are free-flowing rivers.	
FRFAG_2018	In NBA 2018 where no river condition changes were recorded the free-flowing/flagship rivers remained unchanged. 1 = flagship river 0 = not a flagship river	