

Title

Degree of River Regulation (Spatial Dataset)

Abstract

This data summarises the results of a spatial analysis to identify significant tributary junctions in rivers, across the NSW Murray-Darling Basin, where inflows from unregulated or less regulated tributaries join heavily regulated rivers. Tributary junctions were characterized in terms of the relative change in the 'Degree of Regulation' (DoR) at individual tributary junctions. DoR was calculated as the ratio of the storage capacity of all upstream reservoirs relative to the mean annual runoff. Furthermore, This spatial analysis identifies potential tributary hotspots across the NSW Murray-Darling Basin (MBD).

Rivers often experience major discontinuities in ecological function due to dams, whereby the timing and volume of flow and water chemistry can be significantly altered from upstream to downstream of the dam, impacting ecosystem productivity and aquatic food webs. Tributary inflows from such unregulated catchments can play an important role in mitigating changes in water chemistry below large dams, thereby overcoming the so-called serial discontinuity effect, which describes the impacts of large dams on longitudinal gradients in water chemistry. Because tributary inflows can be rich in nutrients and dissolved carbon, they can lead to 'priming' effects, in which biogeochemical processes and ecosystem productivity are enhanced below confluences with more heavily regulated rivers. Yet, there have been few attempts to identify potential priority tributaries that may play a larger role in driving biochemistry and ecosystem function below dams. This spatial analysis identifies significant tributary junctions in rivers, across the NSW Murray-Darling Basin, where inflows from unregulated or less regulated tributaries join heavily regulated rivers.

Note: If you would like to ask a question, make any suggestions, or tell us how you are using this dataset, please visit the [NSW Water Hub which has an online forum](#) you can join.

Resource locator

[Show on SEED Web Map](#)

Name: Show on SEED Web Map

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Display dataset on SEED's map

Function: download

[Data Quality Statement](#)

Name: Data Quality Statement

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Data quality statement for Degree of Regulation (Spatial Dataset)

Function: download

[Degree of River Regulation \(MapService\) \(nsw.gov.au\)](#)

Name: Degree_of_River_Regulation (MapService) (nsw.gov.au)

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

ESRI Rest Map Service of Degree_of_River_Regulation

Function: download

[Degree of River Regulation \(FeatureService\) \(nsw.gov.au\)](#)

Name: Degree_of_River_Regulation (FeatureService) (nsw.gov.au)

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

ESRI Rest Feature Service of Degree_of_River_Regulation

Function: download

[Degree of River Regulation](#)

Name: Degree_of_River_Regulation (WMS) (nsw.gov.au)

[\(WMS\) \(nsw.gov.au\)](#)

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

WMS of Degree_of_River_Regulation

Function: download

[Degree_of_River_Regulation \(WFS\) \(nsw.gov.au\)](#)

Name: Degree_of_River_Regulation (WFS) (nsw.gov.au)

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

WFS of Degree_of_River_Regulation

Function: download

[A-spatial-analysis-of-tributary-effects-below-large-storages-in-the-NSW-Murray-Darling-Basin.pdf](#)

Name: A-spatial-analysis-of-tributary-effects-below-large-storages-in-the-NSW-Murray-Darling-Basin.pdf

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

A spatial analysis of tributary effects below large storages in the NSW Murray-Darling Basin. A report on the methods and results from this spatial analysis.

Function: download

[Metadata Statement Degree of River Regulation](#)

Name: Metadata Statement Degree of River Regulation

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Associate Metadata relevant to Degree of River Regulation

Function: download

Unique resource identifier

Code 7bbed45a-6be2-4519-9afc-4a5dc3c37ab8

Presentation form Map digital

Edition 1

Dataset language English

Metadata standard

Name ISO 19115

Edition 2016

Dataset URI <https://datasets.seed.nsw.gov.au/dataset/7bbed45a-6be2-4519-9afc-4a5dc3c37ab8>

Purpose This spatial analysis identifies potential tributary hotspots across the NSW Murray-Darling Basin (MBD).

Status Completed

Spatial representation

Type vector

Spatial reference system

Code identifying the spatial reference system 4283

Spatial resolution	1 cm
Topic category	
Keyword set	
keyword value	WATER WATER-Surface
Originating controlled vocabulary	
Title	ANZLIC Search Words
Reference date	2008-05-16
Geographic location	
West bounding longitude	139
East bounding longitude	153
North bounding latitude	-39
South bounding latitude	-24.5
NSW Place Name	NSW Murray Darling Basin
Vertical extent information	
Minimum value	-100
Maximum value	2228
Coordinate reference system	
Authority code	urn:ogc:def:cs:EPSG::
Code identifying the coordinate reference system	5711
Temporal extent	
Begin position	2010-01-01
End position	N/A
Dataset reference date	
Resource maintenance	
Maintenance and update frequency	As needed
Contact info	
Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
Telephone number	131555
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Web address	https://www.nsw.gov.au/departments-and-agencies/dccew
Responsible party role	pointOfContact

Lineage

The Australian Hydrologic geofabric and associated catchments and river segments were used to map DoR for the entire MDB (a total of 167,363 distinct stream segments). Estimates of mean annual runoff were derived from the Australian Landscape Water Balance Model (AWRA-L v5) and cumulative upstream storage was calculated based on the volumes associated with the ANCOLD Register of large dams (ANCOLD, 2010). Differences in DoR between individual river reaches (dDoR) were mapped.

Limitations on public access

Responsible party

Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
Telephone number	131555
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Web address	https://www.nsw.gov.au/departments-and-agencies/dcceew
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Metadata date 2024-08-08T21:26:40.302546

Metadata language