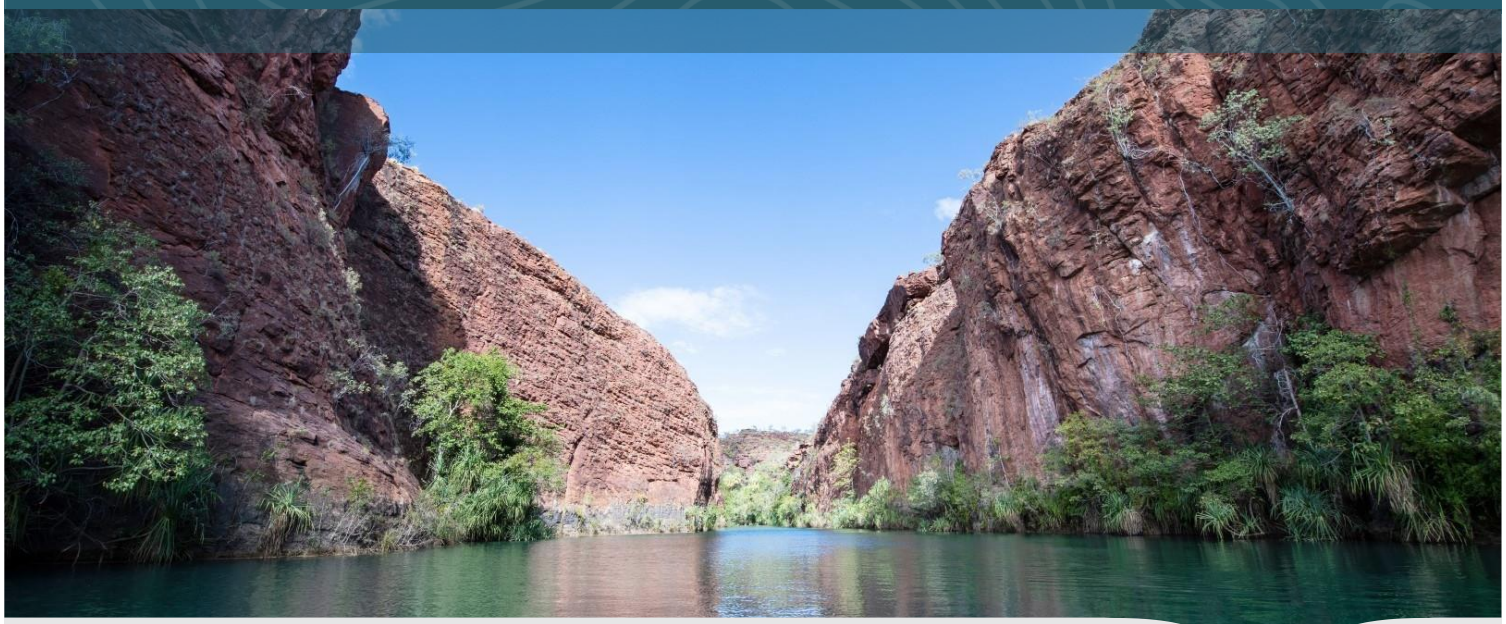
Queensland Government

Department of Local Government, Water and Volunteers



Water Monitoring Information Portal API and Web Services

3 October 2025

dlgwv.qld.gov.au

Acknowledgement of Country

The Department of Local Government, Water and Volunteers respectfully acknowledges the Traditional Custodians of Country. We recognise the ongoing spiritual and cultural connection Aboriginal Peoples and Torres Strait Islander Peoples have with land, water, sea and sky. We pay our deep respects to their Elders past and present, support future leaders and acknowledge First Nations People's right to self-determination.

This publication has been compiled by Programs Knowledge and Systems Initiatives of Water Resource Management, Department of Local Government, Water and Volunteers.

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1. Water Monitoring Information Portal

1.1 Introduction

The Queensland Water Monitoring Information Portal (WMIP) publishes API services which allow clients to retrieve data on an ad hoc or periodic basis in volumes for which the standard user interface is not designed. The Webservice URLs can be directly supplied to the browser (for testing and development) or used programmatically in an acquisition platform.

Water monitoring data is logged and transmitted hourly. It should be feasible to execute time series web service calls every hour at hh:30 to get the latest values.

Webservices are monitored for abuse, excessive or continued malformed calls may result in the client IP address being blocked. A test facility is also available for development and can be accessed via application to wmis@dlgwv.qld.gov.au.

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2. Using WMIP Web Services

The formats used by web services are standard JSON.

WMIP web service calls commonly request data from either the Time Series or Database domain.

Below is a summary of web service calls available through the WMIP, for detail on other capabilities, some more Web service info is published by the vendor: http://kisters.com.au/webservices.html

Time series calls retrieve a series of values for a specific variable measured repeatedly over time.

It should be feasible to execute time series web service calls every hour at hh:30 to get the latest values. Water monitoring data is logged and transmitted hourly.

3. Constructing a Time Series JSON call

To retrieve values for specific variables a JSON call must include the Function to be performed and the list of time series Parameters being requested.

Table 1 lists commonly used JSON Functions.

Table 1 Common JSON Functions

Function	Description	Format returned
get_site_list	return a list of sites	Standard JSON
get_ts_traces	Retrieves one or more time series traces	Standard JSON
get_latest_ts_values	return last time-series values	Standard JSON
get_ts_blockinfo	returns info about time series blocks	Standard JSON
get_site_geojson	returns GeoJSON and other field data from the site table for the provided site list	Standard JSON

For each Function a selection of Parameters are available that specify the time series values being requested. Table 2 lists and describes the Parameters used by the time series Functions in Table 1 in standard JSON reporting format.

Table 2 Parameters used by the time series Functions

			"get_site_list"	"get_ts_traces"	"get_latest_ts_values"	"get_ts_blockinfo"	"get_site_geojson"
Parameters	**Description**	**Example**	**Standard JSON**	**Standard JSON**	**Standard JSON**	**Standard JSON**	**Standard JSON**
version	version of the JSON call	1, 2, 3	"version":"1"	"version":"2"	"version":"2"	"version":"2"	"version":"2"
params	wrapper for specifying named items		"params"	"params"	"params"	"params"	"params"
site_list	Hydstra site list expression Network documents containing a list of network sites including the Stream Gauging Station Network can be downloaded from the WMIP under Reports.	Call Site lists as Groups: "GROUP(OPEN_STATIONS)" "GROUP(GW_STATIONS)" "GROUP(PLUVIO_STATIONS)" "GROUP(CLOSED_STATIONS)" Call Site lists as Groups by Basin: "GROUP(OPEN_STATIONS,BRISBANE)" See Table 8 for a full list of Basin values or Call specific Sites, e.g. “111007A,143001C”	"site_list"	"site_list"	"site_list"	"site_list"	"site_list"
datasource	Hydstra datasource code	Archive=A, Archive & Telemetry=AT, Archive & telemetry discharge data=ATQ, Telemetry=TE		"datasource"	"datasource"	"datasource"	
variables	an array of one or more variable codes	See Table 3 Time Series Variables				"variables"	
var_list	A list of source variables.	100.00,10.00		“var_list”			
trace_list	A list of parameters defining the latest value required, used together with varfrom, varto, lookback				"trace_list"		
varfrom	Source Variable	See Table 3 Time Series Variables		"varfrom"	"varfrom"		
varto	Destination Variable (if Rating to be applied; varto is same as varfrom)	See Table 3 Time Series Variables		"varto"	"varto"		
lookback	How far back to probe the record for a value before returning an error result, in minutes	lookback=60					
start_time	a datetime, combined with starttime -YYYYMMDDHHMMSS	20150101000000 or 0 for the period of record		"start_time"		"start_time"	
end_time	a datetime, combined with endtime -YYYYMMDDHHMMSS	20500101000000 or 0 for the period of record		"end_time"		"end_time"	
data_type	data extraction type	mean, max, min, start, end, tot, point		"data_type"			
interval	data interpolation interval	year, month, day, hour, minute, second, period		"interval"			

			"get_site_list"	"get_ts_traces"	"get_latest_ts_values"	"get_ts_blockinfo"	"get_site_geojson"
Parameters	**Description**	**Example**	**Standard JSON**	**Standard JSON**	**Standard JSON**	**Standard JSON**	**Standard JSON**
report_time	Specifying the report_time as “end” will cause the time output with aggregated values for mean, total, and partial total data types to be the end of the period instead of the start.	start, end					
multiplier	interval multiplier	1		"multiplier"			
auditinfo	return of audit information	1=returns info, 0=no info returned				"auditinfo"	
get_elev	Returns elevation with latitude and longitude	152.405221,-26.98946					"get_elev"
fields	Any field that is part of the site table	'zone','region'					"fields"
format							

The times series values returned by a Function are called by the Variable (i.e. parameters) selected. Table 3 includes the list of Variables for which time series values can be requested.

Table 3 Commonly used Time Series Variables and Conversions

Name	Description	Datasource	Variable Number	Variable conversion	Units returned
			varfrom	varto	
Stage	m GHt (metres Gauge Height)	A, TE, AT	100.00	100.00	m GHt (metres Gauge Height)
Stream Discharge	Complete rating of timeseries from stage to discharge.	A, TE, AT	100.00	140.00	m^3/sec (cubic metres per second, aka 'cumecs')
	Complete rating of timeseries from stage to discharge.	A, TE, AT	100.00	141.00	ML/day (Megalitres per day)
	Complete rating of timeseries from stage to volume.	A, TE, AT	100.00	151.00	Volume, ML (Megalitres)
	Stored calculated discharge in-filled with rated data	ATQ	140.00	140.00	m^3/sec (cubic metres per second, aka 'cumecs')
	Stored calculated discharge in-filled with rated data	ATQ	140.00	141.00	ML (Megalitres per day)
	Stored calculated discharge in-filled with rated data	ATQ	140.00	151.00	Volume, ML (Megalitres)
Rainfall	mm (millimetres)	A, TE, AT	10.00	10.00	mm (millimetres)
Electrical Conductivity (EC)	µS/cm (micro Siemens per centimetre)	A, TE, AT	2010.00	2010.00	µS/cm (micro Siemens per centimetre)
Temperature	°C (degrees Celsius)	A, TE, AT	2080.00	2080.00	°C (degrees Celsius)
pH	pH (pH units)	A, TE, AT	2100.00	2100.00	pH (pH units)
Turbidity	NTU (Nephelometric Turbidity Units)	A, TE, AT	2030.00	2030.00	NTU (Nephelometric Turbidity Units)
Bore Water Level	m (metres)	A, TE, AT	110.00	110.00	m (metres)
Groundwater Elevation AHD	m (metres)	A, TE, AT	110.00	111.00	m (metres)
Artesian Equivalent Potentiometric Surface (EPS)	m (metres)	A, TE, AT	113.00	113.00	m (metres)
Artesian Equivalent Potentiometric Elevation AHD (EPS)	m (metres)	A, TE, AT	113.00	114.00	m (metres)

Table 4 lists the types of datasources from which time series values can be requested.

Table 4 Datasource descriptions

Datasource type	Description
A	Archive datasource is the agency's verified data holding
TE	Telemetry datasource
AT	Composite archive and telemetry data
ATQ	Composite archive and telemetry discharge data – retrieves stored discharge where available and in-fills any gaps with rated discharge data.

Important information regarding stream discharge

The Department calculates discharge (applies a rating) as part of its routine data management processes and stores the calculated result in the Archive datasource as variable 140.00. Telemetry data must be rated from stage to compute discharge. Two composite datasources are available that can provide discharge data: AT and ATQ. To obtain discharge data from the AT datasource that includes any period of telemetered data, the stage data must be rated for the entire period. ATQ is configured to return the stored discharge data and gaps in the period requested provided by rating the stage data, providing a complete record for the period requested.

WMIP Custom Outputs tab is configured to use ATQ by default.

A summary of time series variables is available for Stations in each Basin and accessible from the Basin's Data Availability tab on the WMIP.

Database web service calls retrieve values from a database table.

To retrieve table's values a JSON call must include the Function to be performed and the list of Parameters being requested.

Table 5 lists commonly used JSON Functions for Database web service calls.

Table 5 JSON Functions for Database requests

Function	Description	Format returned
get_db_info	return table data with simple or complex filters or geo filters	Standard JSON
get_groups	return list of groups that site(s) are a member of	Standard JSON
get_cross_sections	return cross section details	Standard JSON
get_varcon	convert data values using ratings or variable conversion steps	Standard JSON

For each Function a selection of Parameters are available to specify the database values being requested. Table 6 lists and describes the Parameters used by the Database Functions in Table 5 in both standard JSON reporting format.

Table 6 Parameters used by the Database Functions

Parameters	Description	Example	get_db_info	get_groups	get_cross_sections
			Standard JSON	Standard JSON	Standard JSON
version	version of the JSON call	1, 2, 3	"version":"3"	"version":"1"	"version":"1"
params	is a wrapper for specifying named items below		"params"	"params"	"params"
site_list	Hydstra site list expression Network documents containing a list of network sites including the Stream Gauging Station Network can be downloaded from the WMIP under Reports.	Call Site lists as Groups: "GROUP(OPEN_STATIONS)" "GROUP(GW_STATIONS)" "GROUP(PLUVIO_STATIONS)" "GROUP(CLOSED_STATIONS)" Call Site lists as Groups by Basin: "GROUP(OPEN_STATIONS,BRISBANE)" See Table 8 for a full list of Basin values or Call specific Sites, e.g. "111007A,143001C"		"site_list"	"site_list"
table_name	Hydstra database table name	"SITE", "BENCH", "PERIOD", "GAUGINGS"	"table_name"		
return_type	type of data structure returned, ARRAY returns an array of records, HASH record preceded by all key fields	hash, array	"return_type"		
sitelist_filter	filter based on the station field using a HYSTNS filter expression	"GROUP(OPEN_STATIONS)" "1051029,1120055,1160218"	"sitelist_filter"		
complex_filter	(optional) filter based on the values of fields	"fieldname":"DATEIN","operator":"GT","value":"20050101"	"complex_filter"		
field_list	(optional) an array of field names, to return a subset of columns	"STATION", "STNAME", "STNTYPE"	"field_list"		

Parameters	Description	Example	get_db_info	get_groups	get_cross_sections
			Standard JSON	Standard JSON	Standard JSON
group_list	(optional) Only return membership details for these groups	"CATCH","GW_STATIONS","OPEN_STATIONS", "PLUVIO_STATIONS"		"group_list"	
section_types	A list of section types	WR (Weir), XS (Control), BR (Bridge)			"section_types"
comments	(optional) Include any section point comments	yes/no			"comments"
gauge_datum	(optional) Subtract gauge zero (from SECTHED table) from all reduced levels?	yes/no			"gauge_datum"
start_date	(optional) Only return cross sections that were measured after this date, YYYYMMDD	20000101			"start_date"
end_date	(optional) Only return cross sections that were measured before this date, YYYYMMDD	20200101			"end_date"

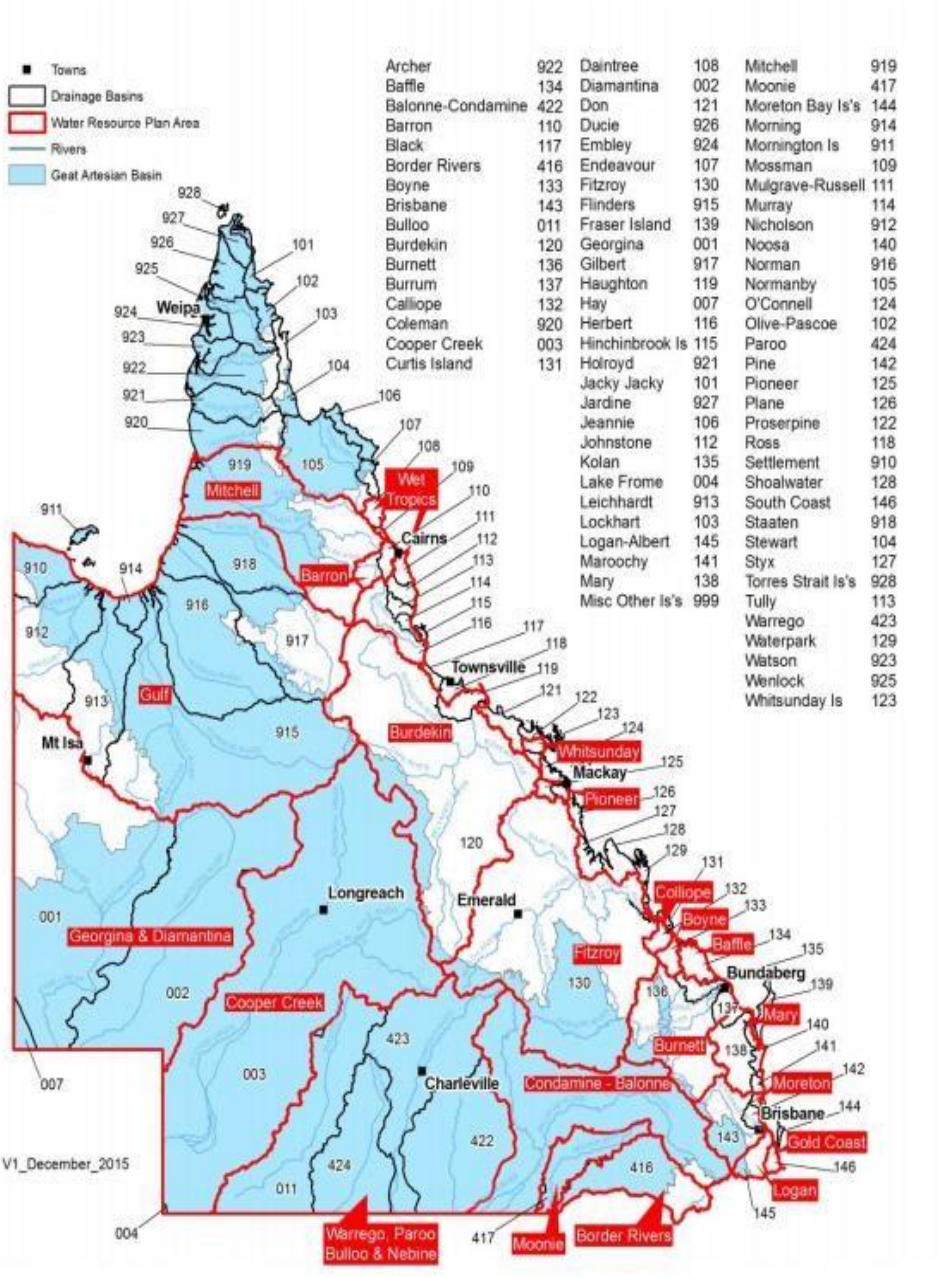
Table 7 Example JSON web service calls

Domain	Description	Function	Example
Timeseries	Retrieves one time series trace	get_ts_traces	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_ts_traces","version":"2","params":{"site_list":"111007A","datasource":"AT","varfrom":"100.00","varto":"151.00","start_time":"0","end_time":"0","data_type":"tot","interval":"day","multiplier":"1"}}
Timeseries	Retrieves multiple time series traces	get_ts_traces	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_ts_traces","version":"2","params":{"site_list":"111007A,134002A","datasource":"AT","varfrom":"100.00","varto":"151.00","start_time":"0","end_time":"0","data_type":"tot","interval":"day","multiplier":"1"}}
Timeseries	Returns last time series values from one site	get_latest_ts_values	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_latest_ts_values","version":"2","params":{"site_list":"130105B","datasource":"AT","trace_list":[{"varfrom":"10.00","varto":"10.00"},{"varfrom":"100.00","varto":"100.00"},{"varfrom":"100.00","varto":"140.00"},{"varfrom":"2010.00","varto":"2010.00"},{"varfrom":"2080.00","varto":"2080.00"}]}}
Timeseries	Returns last time series values from multiple sites	get_latest_ts_values	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_latest_ts_values","version":"2","params":{"site_list":"130105B,144003A,923001A","datasource":"AT","trace_list":[{"varfrom":"10.00","varto":"10.00"},{"varfrom":"100.00","varto":"100.00"},{"varfrom":"100.00","varto":"140.00"},{"varfrom":"2010.00","varto":"2010.00"},{"varfrom":"2080.00","varto":"2080.00"}]}}
Timeseries	Returns information about time series blocks from one basin	get_ts_blockinfo	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_ts_blockinfo","version":2,"params":{"site_list":"GROUP(OPEN_STATIONS,HAUGHTON)","datasources":["A"],"variables":["100.00","100.01","140.00"],"starttime":"20150101000000","endtime":"20500101000000","auditinfo":"0"}}
Timeseries	Returns GeoJSON and other field data from the site table for the provided site list	get_site_geojson	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_site_geojson","version":"2","params":{"site_list":"GROUP(GW_STATIONS,BRISBANE)","get_elev":"1","fields":["ZONE","region"]}}
Timeseries	Convert data values using ratings or variable conversion steps	get_varcon	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_varcon","version":"2","params":{"varcons":[{"site_list":"001203A","datasource":"A","varfrom":"100","varto":"140","requests":[{"qf1":"1","t1":"20250601000000","vf1":"9.00"}]}]}}
Database	Returns a list of Gauging Stations in the Brisbane basin	get_site_list	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_site_list","version":"1","params":{"site_list":"GROUP(OPEN_STATIONS,BRISBANE)"}}
Database	Returns table data with simple or complex filters or geo filters	get_db_info	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_db_info","version":"3","params":{"table_name":"SITE","return_type":"array","field_list":["STATION","STNAME","STNTYPE"]}}
Database	Returns table data with simple or complex filters or geo filters	get_db_info	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_db_info","version":"3","params":{"table_name":"INSTHIST","return_type":"array","complex_filter":[{"fieldname":"DATEIN","operator":"GT","value":"20050101"}],"field_list":["MODEL","STATION","DATEIN"]}}
Database	Returns table data with simple or complex filters or geo filters	get_db_info	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_db_info","version":"3","params":{"table_name":"SITE","return_type":"array","sitelist_filter":"GROUP(OPEN_STATIONS)","field_list":["STATION","STNAME","STNTYPE","LATITUDE","LONGITUDE","LLDATUM"]}}
Database	Returns table data with simple or complex filters or geo filters	get_groups	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_groups","version":"1","params":{"site_list":"GROUP(PLUVIO_STATIONS)","group_list":["CATCH","PLUVIO_STATIONS"]}}
Database	Returns cross section details	get_cross_sections	https://water-monitoring.information.qld.gov.au/cgi/webservice.exe?{"function":"get_cross_sections","version":"1","params":{"site_list":"143001C,143007A","section_types":["XS"],"comments":"yes","gauge_datum":"yes","start_date":"20000101","end_date":"20200101"}}

Table 8 Calls for Groups by Basin

Parameter	Description	Example
site_list	Returns a list of members for the basin in the call	“site_list”:"GROUP(OPEN_STATIONS,[BASIN_VALUE])"
		“site_list”:"GROUP(CLOSED_STATIONS,[BASIN_VALUE])"
		“site_list”:"GROUP(GW_STATIONS,[BASIN_VALUE])"
		“site_list”:"GROUP(PLUVIO_STATIONS,[BASIN_VALUE])"
		“site_list”:"GROUP(CL_GW_STATION,[BASIN_VALUE]))"
		“site_list”:"GROUP(CL_PL_STATIONS,[BASIN_VALUE]))"
	Returns a list of members statewide	“site_list”:"GROUP(OPEN_STATIONS)"
		“site_list”:"GROUP(CLOSED_STATIONS)"
		“site_list”:"GROUP(GW_STATIONS)"
		“site_list”:"GROUP(PLUVIO_STATIONS)"
		“site_list”:"GROUP(CL_GW_STATION)"
		“site_list”:"GROUP(CL_PL_STATIONS)"

Basin	BASIN_VALUE
Archer Basin	ARCHER
Baffle Basin	BAFFLE
Balonne-Condamine Basin	BALONNE_COND
Barron Basin	BARRON
Black Basin	BLACK
Border Rivers Basin	BORDER_RIVERS
Boyne Basin	BOYNE
Brisbane Basin	BRISBANE
Bulloo Basin	BULLOO
Burdekin Basin	BURDEKIN
Burnett Basin	BURNETT
Burrum Basin	BURRUM
Calliope Basin	CALLIOPE
Coleman Basin	COLEMAN
Cooper Creek Basin	COOPER_CREEK
Curtis Island Basin	CURTIS_IS
Daintree Basin	DAINTREE
Diamantina Basin	DIAMANTINA
Don Basin	DON
Ducie Basin	DUCIE
Embley Basin	EMBLEY
Endeavour Basin	ENDEAVOUR
Fitzroy Basin	FITZROY
Flinders Basin	FLINDERS
Fraser Island Basin	FRASER_IS
Georgina Basin	GEORGINA
Gilbert Basin	GILBERT
Haughton Basin	HAUGHTON
Hay Basin	HAY
Herbert Basin	HERBERT
Hinchinbrook Is Basin	HINCHINBROOK_IS
Holroyd Basin	HOLYROYD
Jacky Jacky Basin	JACKY_JACKY
Jardine Basin	JARDINE
Jeannie Basin	JEANNIE
Johnstone Basin	JOHNSTONE
Kolan Basin	KOLAN
Lake Frome Basin	LAKE_FROME
Leichhardt Basin	LEICHHARDT
Lockhart Basin	LOCKHART
Logan-Albert Basin	LOGAN_ALBERT
Maroochy Basin	MAROOCHY
Mary Basin	MARY
Misc Other Islands Basin	MISC_OTHER_IS
Mitchell Basin	MITCHELL
Moonie Basin	MOONIE
Moreton Island Basin	MORETON_IS
Morning Inlet	MORNING
Mossman Basin	MOSSMAN
Mulgrave-Russell Basin	MULGRAVE_RUSSEL
Murray Basin	MURRAY
Nicholson Basin	NICHOLSON
Noosa Basin	NOOSA
Norman Basin	NORMAN
Normanby Basin	NORMANBY
O'Connell Basin	OCONNELL
Olive-Pascoe Basin	OLIVE_PASCOE
Paroo Basin	PAROO
Pine Basin	PINE
Pioneer Basin	PIONEER
Plane Basin	PLANE
Proserpine Basin	PROSERPINE
Ross Basin	ROSS
Settlement Basin	SETTLEMENT
Shoalwater Basin	SHOALWATER
South Coast Basin	SOUTH_COAST
Staaten Basin	STAATEN
Stewart Basin	STEWART
Stradbroke Basin	STRADBROKE_IS
Styx Basin	STYX
Torres Strait Is Basin	TORRES_STRAIT_IS
Tully Basin	TULLY
Warrego Basin	WARREGO
Waterpark Basin	WATERPARK
Watson Basin	WATSON
Wenlock Basin	WENLOCK
Whitsunday Island Basin	WHITSUNDAY_IS



Note: for any of the listed basins, the basin can be specified by substituting the text in the BASIN_VALUE column into the group expression.

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