

Australian River Assessment System: National Guidelines for Coding AusRivAS Sites Using Unique Identifiers

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Decision Support Rules for Coding AusRivAS Sites

Purpose

The purpose of this document is to outline decision rules that can be used to create unique national site codes for AusRivAS test and reference sites.

Background

These rules are derived from a site coding system originally used in the Australian Capital Territory and surrounding region by Environment ACT and the Cooperative Research Centre for Freshwater Ecology [Nichols, Sloane, Coysh, Williams, and Norris 2000; Keen 2001]. They are also similar to a national site coding system developed by Waterwatch Australia [Waterwatch Australia 2002:68].

These rules are designed to facilitate the coding of river health assessment sites, particularly across jurisdictions and at local, region, state, and national scales. They are designed to be compatible with the current regional and state-wide AusRivAS models and existing AusRivAS software. This site coding system allows AusRivAS sites to be identified using a unique alpha-numeric code that is simple, easy to understand, and consistent across varying jurisdictions, government agencies, and private sector organisations. The code also contains location “clues” that provide an approximate spatial reference for the site.

These decision rules provide a nationally consistent framework. They are, however, not meant to replace existing site coding methodologies used by individual state and territory agencies for the Monitoring River Health Initiative and other purposes (although they could be used for this purpose). This site coding system is, however, recommended for all new AusRivAS sites.

Principles

AusRivAS data is routinely used for a variety of purposes, including State of the Environment reporting, water resource condition auditing, water quality monitoring, monitoring natural resource and river condition, and evaluating the impact of government investments in Natural Resource Management. When used in these ways, AusRivAS data is often collated from a variety of sources covering disparate spatial scales. In many cases the resultant data set spans multiple regions and various jurisdictions. Test and reference sites should therefore be allocated with a unique site code that can be used to identify each individual site (that is, an “unique identifier”). Consequently, a consistent approach to site coding is important for managing consolidated data sets [Waterwatch 2002].

To maintain data integrity in multi-jurisdictional data sets, site coding should be based on the following principles:

1. each site should have a unique identifier or site code;
2. the potential for replicated site codes in multi-jurisdictional data bases should be minimised;

3. the site code must be compatible with existing AusRivAS software and models;
4. a national side coding system should be easy to understand and simple to use, particularly at the regional and local level; and
5. the coding system should easily updated to take account of new knowledge and technologies.

Decision Rules

Site coding decision support rules for assigning a national site code to AusRivAS test and reference sites are:

1. ***Determine the Drainage Division.*** Drainage Division numbers are derived from *Australia: Drainage Divisions and Basins* [AWRC 1975:map 5 (<http://www.deh.gov.au/water/wetlands/database/directory/appendix3.html#map-drainage>)] and are expressed as Arabic numerals ranging from 01 through to 12 in the first two character positions of the site code.
2. ***Determine the River Basin.*** River Basin numbers are also from *Australia: Drainage Divisions and Basins* [AWRC 1975:map 5 (<http://www.deh.gov.au/water/wetlands/database/directory/appendix3.html#map-drainage>)] and are expressed as Arabic numerals ranging from 01 through to 46, depending on which particular Drainage Division the River Basin is in. These two digits fill the third and fourth character positions of the site code.
3. ***Select a water body code.*** The site type is coded to identify whether the water body is standing (a lake or dam), flowing (a creek, stream, or river), estuarine (subject to tidal influences), or a bore hole; and is expressed as either 1 (standing), 2 (flowing), 3 (estuary), or 4 (bore). This digit fills the fifth character position of the code.
4. ***If appropriate, insert a four character catchment code.*** If the data is being used for local or regional reporting, include a four character catchment code. These alphabetic characters are always expressed as capitals and are based on named rivers (but could, in future, be modified to correspond with NLWRA derived catchments). They occupy the sixth, seventh, eighth, and ninth positions of the code.
5. ***Measure the Distance from Source to the nearest 100 m.*** A five digit numeric code is allocated to the site based on its distance from source measured in km to one decimal place (that is, to the nearest 100 m), as measured on a 1:100 000 scale topographic map or by a Graphic Information System. These five digits fill the last four character positions of the site code.
6. ***If appropriate, apply a two or three digit state or territory prefix.*** If the data is to be used in a multi-jurisdictional data base, a two or three character, uppercase prefix (that is: QLD, NSW, ACT, VIC, SA, WA, NT or OFF[shore territories]) may be included in the site code to facilitate data handling and site identification.

Example

Site Location Code: ACT04102COTT0152.

ACT04101COTT0532 = ACT | 04 | 10 | 2 | COTT | 0152

Optional state / territory prefix | Murray-Darling Drainage Division | Murrumbidgee
River Basin | flowing | Cotter River | 15.2 km from source.

Future Work

In the future it may well be possible to write a simple macro or computer program to convert existing spatial references such as latitude and longitude (expressed in decimal degrees or 10 figure MGRS) to site codes. The coding system could be modified to account for any freshwater bioregionalisation or river typology that emerges in the future by replacing the Drainage Division and River Basin segments of the codes. It is also possible to include a second four character code based on the nearest named river, town, or feature in the code, ideally immediately before the distance from source characters.

Notes

1. MS Access and Excel do not readily except Roman numerals as numbers or integers. Hence Drainage Division numbers are expressed as Arabic numerals.
2. A zero (0) precedes all Drainage Division and River Basins numbers less than 10.
3. There is no decimal place in the five digits of the distance from source component of the site code.
4. Using numeric codes to identify Drainage Divisions and River Basins proves a capacity for the coding system to be adapted to newer bioregional and / or geomorphic regionalisations as they emerge.

References and Supporting Documents

- AWRC, 1975, *Review of Australia's Water Resources 1975*, Map 5, Australian Water Resources Council, Commonwealth of Australia, Canberra.
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