ASSESSMENT

The types of hydrological information looked at by the MNC assessment are: Sustainable Rivers Audit

• saves the most downstream river habitats and natural flow regimes along the major river or river systems.
• assesses to determine the variability in different parts of the catchment.

SRA 2 assessment:
• aggregates information from the major rivers and tributary systems through averaging reach scores.
• will tend to give higher scores for a valley that has a broad suite of important parts of the catchment.

NSW River Condition Index (NSW IC) spatial reporting of long-term river health. Used as the basis for aligning water sharing and environmental action plans. The assessment methodology was considered for the Assessment of the River Condition Index and uses the information in planning through stakeholder assessment for priority setting of interventions. Revised in 2013 by the NSW Office of Water.

There are major methodological differences between NSW’s IC and SRA 2 measures.

• uses a different river classification for its Physical Form component (health-based River Styling). This RSC also incorporates catchment disturbance through the RPAH approach for knowledge generation and knowledge translation assessment.
• uses a different method to evaluate that same result in different physical form scores.

There are four major differences between the IC and the SRA 2.

Victoria’s Index of Stream Condition (VICIS) provides independent assessment of stream condition at the reach scale across Victoria. Used to assist Catchment Management Authorities with management objectives and resource effectiveness of long-term programs. The third assessment is currently in preparation.

There is a difference in scale of the measures.

The SRA 2 report consists of three volumes:

Volume 1 describes the framework of the SRA 2, methodology and policy. The report contains recommendations for future implementation and action.

Volume 2 contains the assessment findings for the Murray-Darling Basin states (Australia and New Zealand) and was published on the MDC website in 2010. It is the SRA 2 report, which provides the main findings for each reaches report. This document includes a snapshot brochure which provides over view, case studies for all reaches, and others on a black and white version online.


SRA 2 is the second river health assessment report on the condition at 23 designated river valleys of the Murray-Darling Basin. The report has been prepared by the Independent Sustainable Rivers Audit Group and is an initiative of the Murray-Darling Basin Ministerial Council.

The SRA 2 covers the period 2008 to 2010 and follows the first report (SRA 1) which covered the period 2006 to 2007.

This document presents a summary of key findings from the SRA 2, compares results with the SRA 1 report, and contains the SRA 2 report on individual reaches and an overall assessment, and provides context with regard to the proposed Basin Plan.

Further information
www.mdb.gov.au

Table 2: Assessments and the main differences with SRA 2.

<table>
<thead>
<tr>
<th>SRA 2</th>
<th>VICIS</th>
<th>MNC</th>
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<tbody>
<tr>
<td>provides a comparative condition and temporal, spatial and cross scale evaluation at the valley and zone scale.</td>
<td>scale of analysis allows a Basin-wide comparison of the 23 valleys.</td>
<td>further information</td>
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Changes to the SRA method over time

The changes to the SRA method over time represent a major refinement and improvement of the methodology used to assess the status of the Basin’s river ecosystems. SRA ratings were modified with new measurements and improved metrics. In addition, SRA ratings now include an assessment of vegetation and physical form. The refined methods in SRA 2 resulted in a more accurate representation of condition of the ecological components (terrestrial and several ecosystems). Due to the changes in methodology, it is not possible to directly compare the results from SRA 1 and SRA 2. SRA 2, however, includes an analysis of changes over time for individual attributes including fish, macroinvertebrates and hydrology using the data collected over the entire SRA program (2005–2010).

The difference in methods influences the relative ecosystem health rankings of the 23 valleys. Despite this, the rankings appear very similar between both assessments. This is because findings for half of the three themes (fish, macroinvertebrates) are similar and the very considerable influence on the ecosystem health rating from the physical form assessment.

Condition and temporal patterns within themes

Key findings from the analysis of temporal patterns against reference condition show that:

- The condition of fish communities improved significantly in seven valleys and declined significantly in the other seven valleys from 2005 to 2010 (five of these were located in the lower Basin). The remaining nine valleys showed no significant change.
- Three major consistent patterns evident of fish and/or invertebrates across all seven valleys from 2005 to 2010:
  - No change in fish health rating in reference condition across all valleys from 2005 to 2010.
  - An overall increase in fish health rating in reference condition across all valleys from 2005 to 2010.
  - An overall decrease in fish health rating in reference condition across all valleys from 2005 to 2010.

A robust trend analysis will require more information through time, which will allow an assessment of potential variability to be taken into account.

How does SRA report 2 differ from other river health assessments?

There are various river health assessments undertaken by different levels of government or non-government agencies with different objectives, methods and purposes. The following is an attempt to answer:

This framework for Assessment of River and Wetland Health (ARW) has developed a number of outputs at different potential end-points and to provide the ability to compare and integrate different types of assessment—conducted at state, territory and basin scales.

Recently, a number of assessments have been published or are being finalised for publication by a section of agencies. These assessments, and the main differences with SRA 2, are listed in Table 1.

How does SRA report 2 relate to the proposed Basin Plan?

Any area of the proposed Basin Plan is to improve the health of the Basin by setting a long-term, environmentally sustainable level of water use for each river. This is the amount of water that can be used without average for consumptive use (irrigation, agriculture, etc.) being exceeded. The plan also aims to meet environmental needs through water quality and salinity management and improved quantities and management of environmental water.

The Basin Plan will not address catchment influences such as:

- vegetation clearance and impacts associated with productive land use
- on-stream operations of water users
- the influence of invasive species
- habitat alteration

These influences have also contributed to the observed decline in health of the Basin’s rivers, wetlands and floodplains. An effective Basin Plan is a sustainable plan that addresses river health and many other complementary river and catchment management activities will still be required.

The focus of the Basin Plan is on rehabilitating the state of Basin resources from consumptive use to a more sustainable level, thereby reducing the adverse impact to the environment. The plan is intended to enhance the sustainability of water use, and water resources, in the Basin. The plan will not address all issues that may cause change in the Basin. This includes those external factors that may cause change, such as climate change, and will not amend the way in which the water is managed across the Basin.

Since the condition index for SRA report 2 is assessed relative to the hypothesis of river ecosystem health, this index represents a longitudinal assessment of lower flows. These requirements for ecological assessments operate on different spatial scales and are intended to be used in conjunction with condition assessments at the different spatial scales. For instance, in SRA report 2, the integrated ecosystem health rating does not incorporate the assessment of hydrological condition because hydrological condition is captured in the seven major drivers of condition. However, this integrated hydrological condition in SRA report 2 will affect overall ecosystem health ratings in a way that should be taken into account.