

NSW Water Quality Monitoring Framework

Schedule C: Data sharing process

June 2026

Acknowledgement of Country



Department of Climate Change, Energy, the Environment and Water acknowledges the traditional custodians of the land and pays respect to Elders past, present and future.

We recognise Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to place and their rich contribution to society.

Artist and designer Nikita Ridgeway from Aboriginal design agency – Boss Lady Creative Designs, created the People and Community symbol.

NSW Water Quality Monitoring Framework

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Glossary

Term	Description
Data custodian	Organisations collecting water quality data and providing it to the Integrating Authority under the Framework
FAIR	Findable, Accessible, Interoperable and Reusable
Integrating Authority	The group or agency responsible for overseeing the Framework and the integration, sharing and publishing of data
IAR	Information Asset Register
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
NSW SEED/SEED	NSW Sharing and Enabling Environmental Data (portal)
OCSE	Office of the Chief Scientist and Engineer
Pilot group/Pilot stakeholder agencies	The primary group of agencies involved in the development and implementation phases of the Framework
Technical solution	The combination of processes and digital platforms that will enable better data sharing under the Framework

1 Background

The NSW Water Quality Data Framework project (the Framework) aims to improve the collection, sharing, and publication of water quality data across NSW.

It is being developed as part of the NSW Government's broader response to the Office of the Chief Scientist and Engineer's review of the [Menindee fish death event](#). Delivery of full responses and commitments are progressing through the [Restoring the Darling–Baaka River program](#).

The Framework also aligns with the [NSW Water Strategy's](#) priority to improve the health of river, floodplain, and aquifer ecosystems.

The Framework is a central component of the NSW Water Quality Governance Roadmap.

Water quality data is currently collected, stored, and used by various state government agencies and councils. However, there is a need to improve visibility among these agencies and enhance transparency and accessibility with the wider community.

The Framework and the participation of water quality monitoring agencies within it will be guided by a set of principles.

These principles are:

- commitment to open data and transparency and to the NSW Government's open data framework
- commitment to the Framework's agreed standards and protocols for data collection, management and publication and to continual improvement and development of these standards
- commitment to sharing metadata that is discoverable and sufficient for publication
- commitment to FAIR data principles (Findable, Accessible, Interoperable and Reusable)
- commitment to the vision of any person being able to easily access information on the quality of the water in their local area, or area of interest, through any connected device.

This schedule of the Framework (Schedule C: Data sharing process) presents a preliminary data sharing process to facilitate the transfer, quality assurance and public sharing of water quality data and monitoring program information (metadata).

2 Introduction

As part of the NSW Water Quality Framework, a data sharing process is required to facilitate the transfer, quality assurance and sharing of water quality data and metadata between agencies and organisations in NSW.

Water quality data is collected by numerous organisations in NSW for a variety of purposes. There are 2 key statewide water quality monitoring programs in NSW informing the environmental health of rivers and streams:

- the NSW hydrometric network
- the Statewide Water Quality Assessment and Monitoring Program.

While these programs provide comprehensive coverage, additional monitoring programs and local projects are often needed to address specific or localised water quality issues.

There are many state government and local council programs currently collecting water quality data in more localised areas, including across coastal catchments and estuaries. However, all these programs share the same issues of monitoring program data or metadata are not always publicly shared or catalogued in a central, accessible location. This is in part due to a lack of clearly defined roles, responsibilities, and processes for agencies to refer to in data sharing. As a result, valuable information with the potential to assist future water quality monitoring, modelling program design, incident responses or policy decisions may be overlooked by agencies. Overcoming this challenge through enhancing sharing practices and cataloguing data in an easily accessible location is a central aim of the Framework.

This document outlines a data sharing process to facilitate the discoverability, quality assurance and sharing of water quality data by agencies. This version of the data sharing process is a pilot process designed to use existing departmental technologies. As such, principles of the data sharing process, a program logic and recommendations for development are provided to guide continual improvement of data sharing processes.

Importantly, the data sharing process does not provide information directly to decision makers or agencies but makes data publicly available in a centralised and catalogued access point, for agencies and the public to access. Users of the shared data remain responsible for understanding the limitations and caveats of the information and applying appropriate expertise when analysing and interpreting it.

The data sharing process (this document) works in conjunction with other Framework documentation, notably Schedule A: Data sharing governance model and Schedule B: Data standards and protocols, to organise, improve and share water quality data.

3 Scope of this document

The Framework's data sharing process prototype is a combination of existing platforms, processes and applications used to facilitate the transfer, organisation, quality assurance, and sharing of water quality information and data in NSW.

The prototype data sharing process has been designed to:

- establish a baseline process to be continually improved upon
- leverage existing digital platforms and technologies available to the department (no new investment in technological capital)
- avoid duplication of existing platforms and processes
- facilitate a federated data sharing governance model
- minimise changes, or increases, to data custodian processes and workloads.

Importantly, the data sharing process prototype does not provide for the storage of data by agencies, but for the transfer, quality assurance review and sharing of water quality data and metadata.

Therefore, data custodians retain the right and responsibility to manage their data however they see fit (though assistance or recommendations may be provided in exceptional circumstances). In addition, decision-making processes based on water quality data shared through the Framework are the responsibility of data users or inter-agency agreements.

The primary focus of the first phase of the Framework is promoting the discoverability of water quality monitoring programs related to the health of rivers and streams in NSW. There is an emphasis on real-time, routine or long-term monitoring programs and projects measuring basic water quality parameters including:

- temperature
- dissolved oxygen
- nutrients (nitrogen and phosphorus)
- chlorophyll or algal counts (including cyanobacteria)
- pH
- electrical conductivity
- turbidity.

When agencies or organisations offer to share data outside of the above scope through the governance model and the data sharing process, the Integrating Authority will make its best effort to support this work, is the data is of sufficient value and quality.

Recommendations for improvement of the prototype are provided at the end of this schedule, including alternate application, platform or prototype options to fulfil the functions of an ongoing data sharing process.

This document focuses on providing a process to increase the discoverability of data and programs, improve accessibility where possible and, to some degree, centralisation. The data sharing process is not a final product or single central portal, but it outlines a pathway for sharing program data or metadata in a way that improves visibility.

A permanent Framework hosting curated and aggregated data would require a portal interface, with some form of spatial capability. The selection of an appropriate data platform to house water quality data is a technical decision driven by architectural policy decisions.

The department is developing, via Digital Strategy Roadmap processes, a range of technical solutions in the near to medium-term future. Consequently, formulating a specific data portal or platform architecture is beyond the scope of this pilot project without clarity on future platform availability and funding intent.

4 Data sharing process

4.1 Overview

The Framework aims to follow a pathway of discoverability, accessibility and centralisation. For this phase of the Framework, the primary focus is on promoting discoverability of monitoring programs, with an emphasis on open sharing and metadata availability.

With the aim of making the implementation of the Framework simpler for participating agencies and groups, the project team decided to explore using an existing platform that allows the cataloguing of data and metadata assets. This would enable upskilling of the team to improve upon the current understanding of an existing, public facing portal.

The Sharing and Enabling Environmental Data portal (SEED) has been selected for this phase of the Framework as it provides the following features:

- allows cataloguing and grouping of data assets
- allows for the sharing of metadata information without the attached data in the case of a data custodian only wishing to share metadata for discovery purposes
- has a suitable search function with filters for groups, agencies, topics and more
- can be accessed on most web-enabled devices.

The pilot technical solution is presented to support this document. That model is a hybrid custom web interface/SEED group to demonstrate the functionality of the Framework's governance model. Alternative platforms may be explored in the future. This could be if functional requirements are identified, or if system architecture or policy decisions create new technical capacity.

4.2 Introduction to SEED

The SEED portal was developed by the NSW Government for improved access to, and sharing of, NSW environmental data. Datasets can be searched for in the dataset catalogue or viewed on a built-in spatial viewer map tool. Data owned by state government groups, industry, academic institutions, local councils and community groups covering a variety of environmental topics can be found on the portal.

4.2.1 SEED Copyright and Creative Commons

Each data record on SEED is associated with a particular licence that is listed under the Metadata Statement. The terms of the licences will govern reuse of the data and its metadata. New South Wales Government owned data on SEED is protected under the Creative Commons Attribution 4.0. This licence allows data users to copy and share the material, or transform and build upon the material, provided the appropriate credit is given.

4.2.2 SEED privacy considerations for data users

The Privacy and Personal Information Protection Act 1998 (NSW) is a framework for how NSW government agencies collect, store and use personal information. As such, any information collected by SEED cannot be used or disclosed without user consent, unless under circumstances permitted by the Act above, such as in administering environment protection legislation. The Act also includes the right to access and change your personal information that is held by the NSW Government.

4.3 Process for data sharing to SEED

Any registered user of SEED can create a data asset for the organisation they are assigned to.

When creating each data asset in SEED, the following information is provided:

- title of the dataset or program (generates the URL of the SEED asset)
- description of the dataset or program
- data quality statement
- metadata statement
- spatial data where available, to enable viewing on a map.

See Appendix C: SEED metadata statement steps for a more detailed description of the information to be provided with a dataset and minimum data requirements. Refer to Schedule B for a more detailed description of data standards.

For programs with more sensitive data, or where a participating agency wishes not to share data through the SEED portal, providing quality, high level metadata may be sufficient for promoting discoverability. Additional information that may be provided could include:

- a geospatial layer of site locations and extent, making it viewable on a map
- a dashboard displaying data visually
- program overview or summary documents
- an image such as a photograph or map
- methods documents
- program website URL
- reports.

Each additional metadata element included allows a potential data user to understand the program and more quickly evaluate how suitable the dataset is for their needs. However, not all of these are required to create an effective asset page on SEED.

For programs that may have multiple SEED asset pages, or where a data custodian wishes to link between program asset pages, these pages can be nested in a “parent-child” structure. This structure would feature a single “parent asset”, such as the page for the broader program, with one or multiple “child assets” nested beneath it, such as dashboards, datasets or reports (see Figure 1).

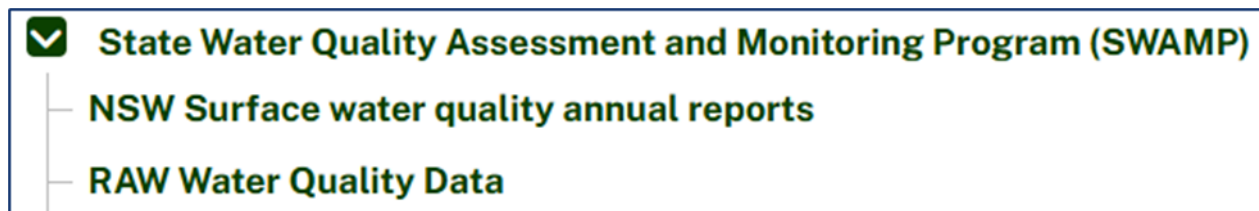


Figure 1. Example of nesting data asset pages in SEED

4.3.1 Departmental sharing process

Departmental assets can be created and uploaded to the Information Asset Register (IAR) before being published to SEED. The IAR application catalogues resources that can be discovered by, and accessed by, government staff.

The IAR is also used to document and identify high value assets prior to publication of data through the SEED environmental data portal. These records are also syndicated to Data.NSW open data portal. For discovery purposes, any datasets deemed worth registering in the IAR are recommended to have their metadata published in the SEED portal. This can be done in a way that allows discovery but not access. **Metadata records can be published without the associated dataset attached.**

The final step in the sharing process is notifying the Integrating Authority (if not already involved) who can add the published data asset to the NSW Water Quality Monitoring Group in SEED. Cataloguing assets into a group on SEED aims to improve discoverability and searchability by allowing a data user to filter available datasets and more easily find statewide water quality data and programs.

4.3.2 Third-party sharing process

Non-departmental data assets can be shared directly through SEED. This can be done either by the agency/organisation independently, or with the assistance of the Integrating Authority. Assets can only be uploaded to SEED by registered users on behalf of their registered organisation.

If the organisation is not yet registered in SEED, the following information is required for the SEED team to complete the registration process:

- organisation name
- description
- thumbnail image or logo
- organisation contact name
- contact email for general open data enquiries
- phone contact for general open data enquiries.

The process outlined at the start of section 4.3 can then be followed to upload a data asset for approval and publishing in SEED.

The final step in the sharing process is notifying the integrating authority (if not already involved) who can add the published data asset to the NSW Water Quality Monitoring Group in SEED. Cataloguing assets into a group on SEED aims to improve discoverability and searchability by

allowing a data user to filter available datasets and more easily find data and programs related to water quality.

4.3.3 Supporting documentation (links from SEED)

Supporting information can be found on the [SEED's help page](#), including:

- how to add your data to the SEED map
- how to add a dashboard to SEED
- information about SEED metadata
- information about the data quality statement.

5 Updating data and metadata

The Framework follows the SEED metadata standards, which are based on the ANZLIC Metadata Profile for spatial and environmental datasets. These standards define the minimum set of information that must be recorded for each dataset.

Metadata describes key aspects of a dataset such as when, where, how, and why it was collected, any limitations on its use, and how often it is updated. It outlines the context of the data and supports effective comparison and integration across different monitoring programs and systems.

By aligning with SEED's metadata approach, the Framework ensures that water quality data can be easily accessed and understood. Metadata is provided by the data custodian at the time of submission and is published alongside the dataset, either as a summary or a full Metadata Statement. For more information on SEED metadata standards and how metadata is displayed, refer to the SEED portal or the [ANZLIC metadata guidelines](#).

The Framework adopts the Data Quality Reporting Standard used by SEED. This approach requires each dataset to include a data quality statement, which provides users with clear information about the reliability of the data.

Data quality is assessed through a structured questionnaire, and the total score determines the quality level and whether a star rating is awarded. The rating systems from SEED are shown in Table 1. This process supports the Framework's objectives of improving water quality monitoring data.

Table 1. SEED Data Quality Rating System

Points	Quality Level	Star / No Star
0	Poor	No Star
1	Poor	No Star
2	Fair	No Star
3	Good	No Star
4	Very Good	Star
5	Excellent	Star

The integrating authority is responsible for completing the assessment and assigning the quality rating. For a detailed outline of roles and responsibilities, refer to Schedule A: Data governance model.

6 Appendices

6.1 Appendix A: Steps to publish external data to SEED

The Framework uses the SEED Metadata Statement and Data Quality Statement for publishing external datasets to the technical solution.

Step 1: Complete Metadata and Data Quality Statement Forms

All external data must be accompanied by a:

- Metadata statement (Appendix B)
- Data quality statement (Appendix C).

Step 2: Confirm organisation details

- Name:
- Description:
- Thumbnail image:
- Jurisdiction:
- Organisation contact name:
- Contact email for general open data enquires:
- Phone contact for general open data enquires:

Step 3: Prepare and share the final dataset

Once the dataset is finalised, follow the steps to create the data asset in SEED. The Integrating Authority may support the data custodian in this process if required. Make sure the dataset is ready for public use.

Step 4: Review the Draft Dataset page and Data Quality Statement

Step 5: Approve and publish

After being reviewed, the SEED team will publish the dataset.

6.2 Appendix B: SEED data quality statement steps

The data custodian will provide:

1. Custodian email
2. Custodian phone
3. The dataset name this data quality statement relates to.

6.3 Appendix C: SEED metadata statement steps

The data custodian will provide the following information. The Integrating Authority may support the data custodian in filling out the metadata statement form and uploading the dataset to SEED on their behalf if required.

1. Title
2. Edition
3. Presentation form e.g., document hardcopy, audio digital
4. Publication type e.g., map, annual report, newsletter
5. Description e.g., useful notes about the data
6. Purpose
7. Status e.g., describes the status of resource e.g., completed, being updated etc.
8. Organisation
9. Frequency of change
10. Tags
11. Field of research
12. License
13. Geospatial topic
14. Extent:
 - a. South latitude
 - b. West longitude
 - c. North latitude
 - d. East longitude
 - e. Temporal coverage From
 - f. Temporal Coverage To
 - g. Supplemental Information
 - h. Datum e.g., WSG84, GDA 2020
 - i. Lineage
 - j. Data Custodian Contact

Further information on metadata statements can be found in the [About SEED Metadata page on SEED](#).

7 References

ANZLIC (2011). ANZLIC Metadata Profile Guidelines, accessed 24 February 2026.

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