Community of practice in Building River System Models for Coastal Regions of NSW

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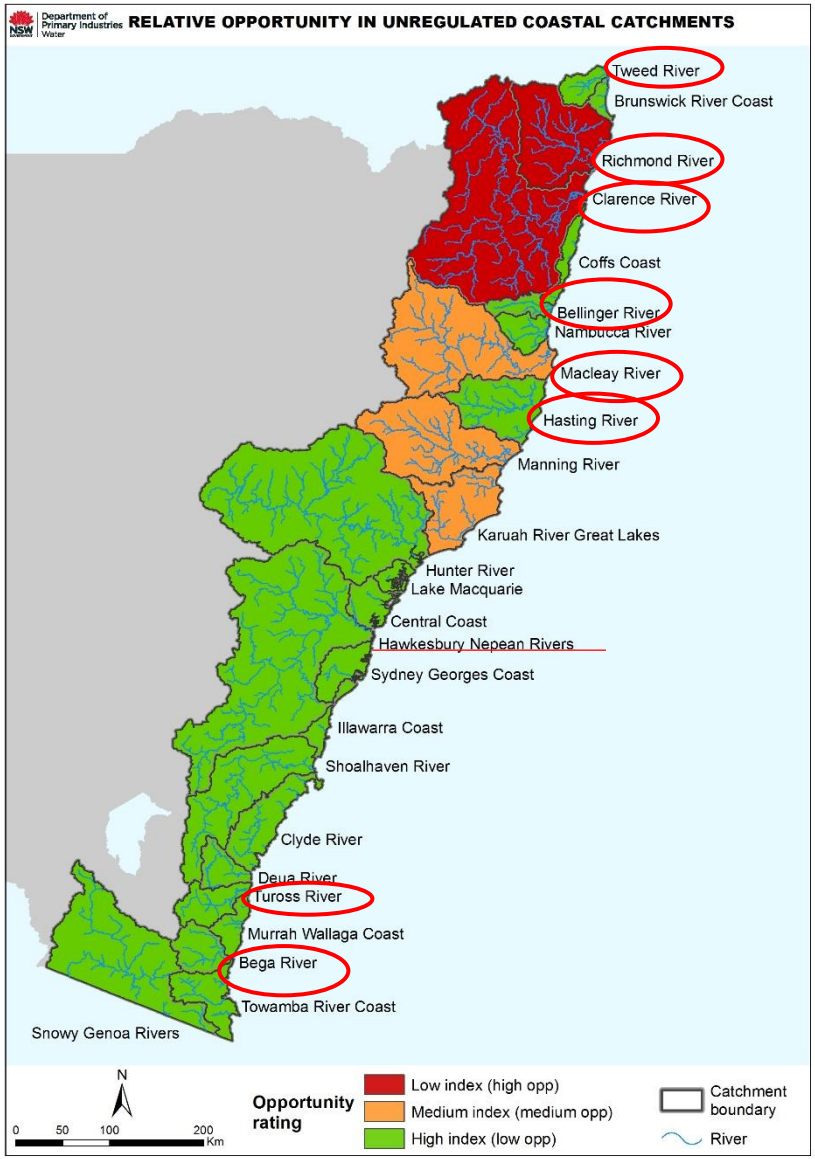
Objectives and Modelling Areas

Objectives:

- to build high quality, robust and fit for purpose models that are suitable for running a wide range of scenarios to meet a range of accountabilities under NSW and Commonwealth legislations.

Software:

- eWater Source



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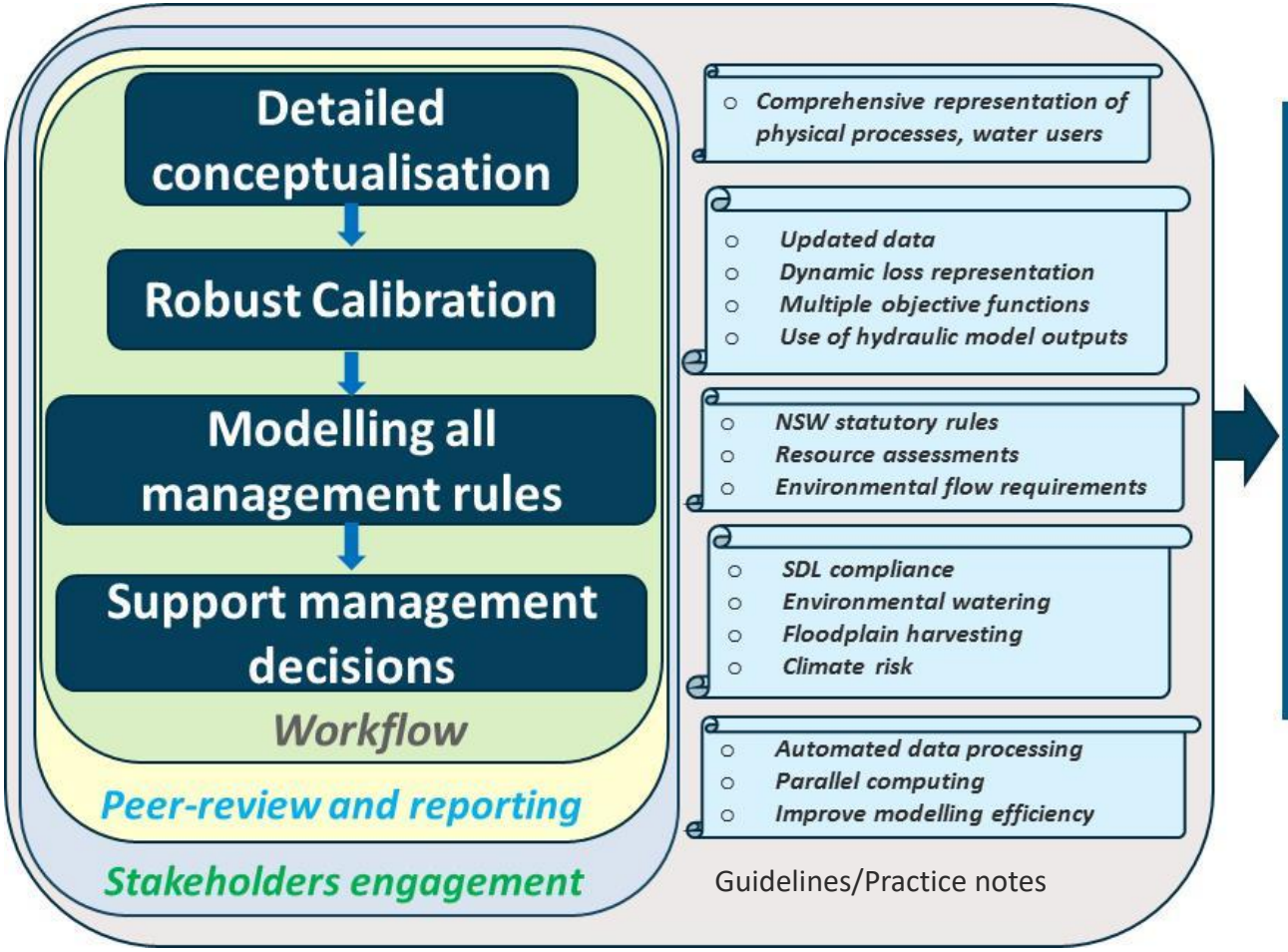
Common Framework for Model Build

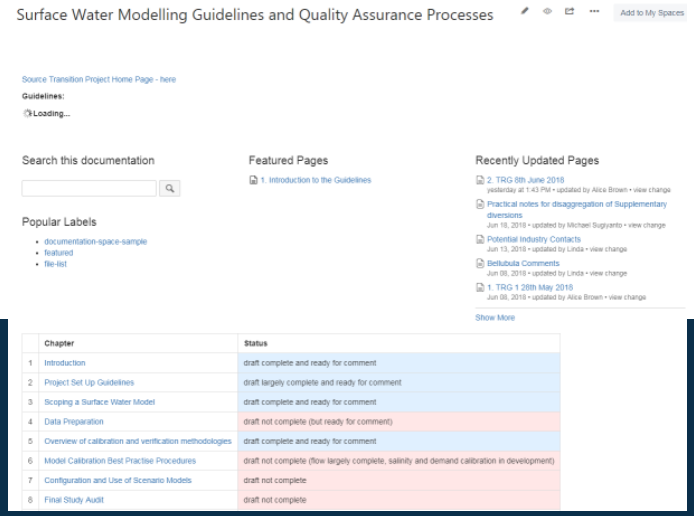


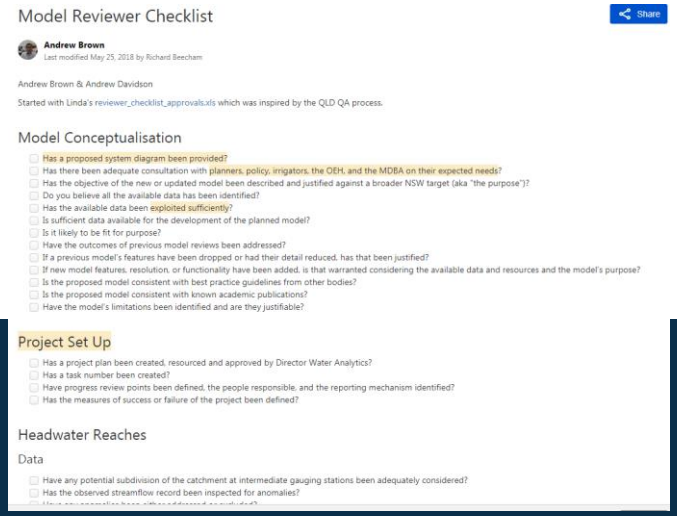
Suite of better models that

- are fully functional, stable and efficient
- support various needs for water management
- have confidence of stakeholders
- are well documented.

Guidelines and Practice notes

- Comprehensive in-house guidelines used in model development and calibration.
- DPIE Water have partnered with the MDBA, CSIRO and other jurisdictions to developed a series of practice notes for consistency in modelling across jurisdictions.





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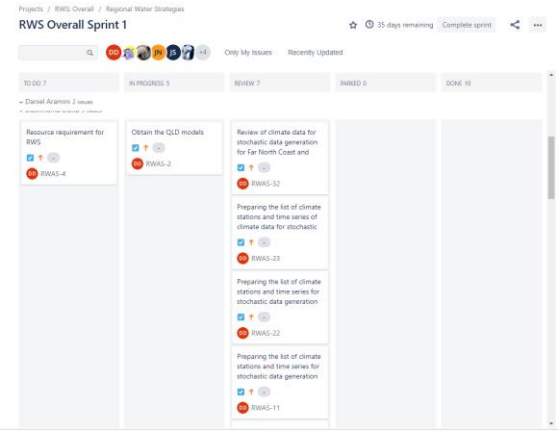
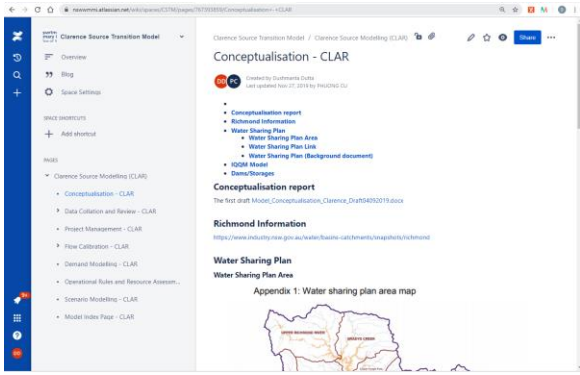
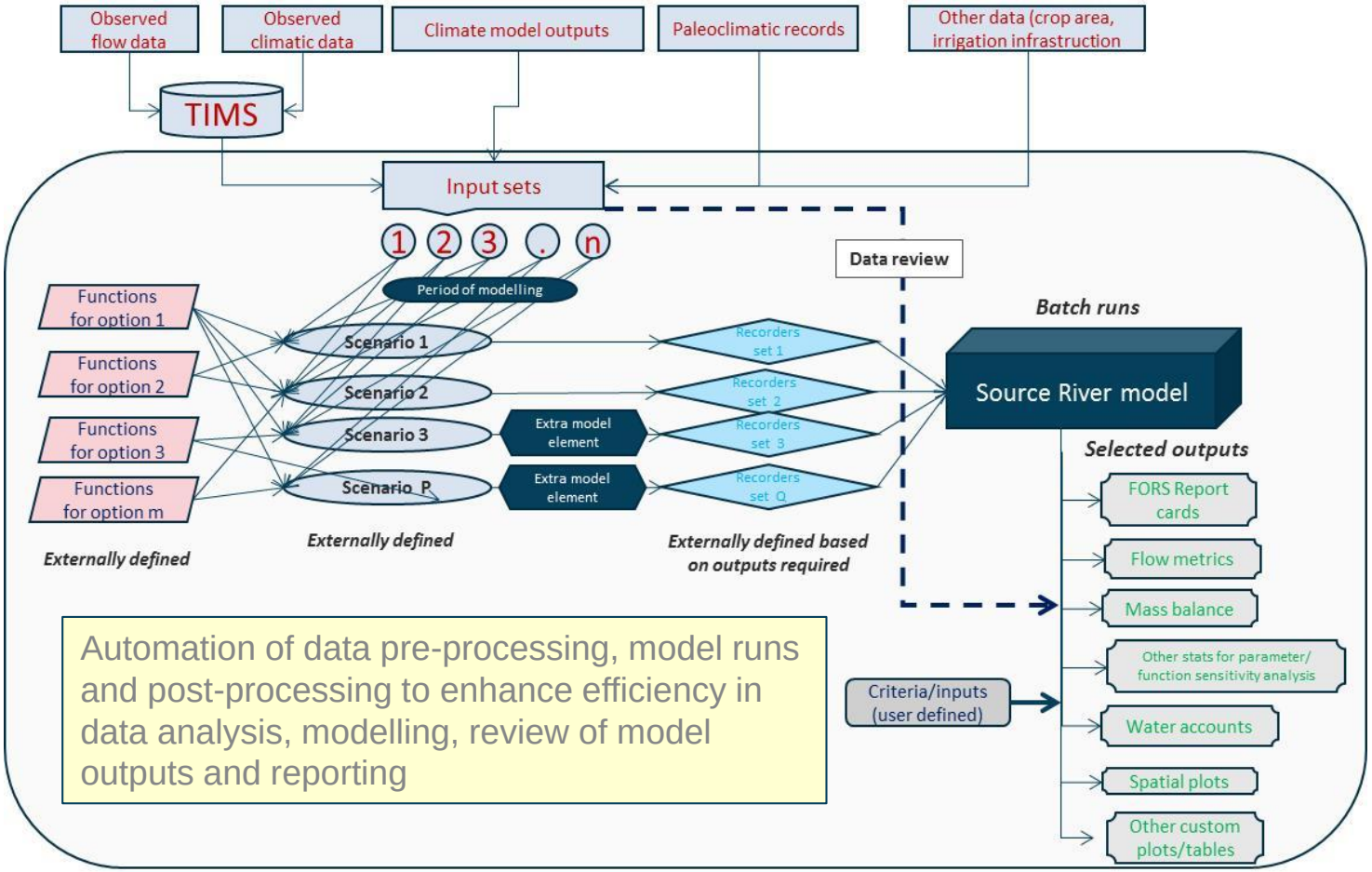
Project Management & Documentation

- Agile project management
- Daily to weekly working records in Confluence
- Short report for each completed step (templates)
- Collated technical reports of full build:
  - detail how model was built
  - Conformance with guidelines
  - for Internal and external review of the models
- Access provided to key stakeholders.





Automation through workflows

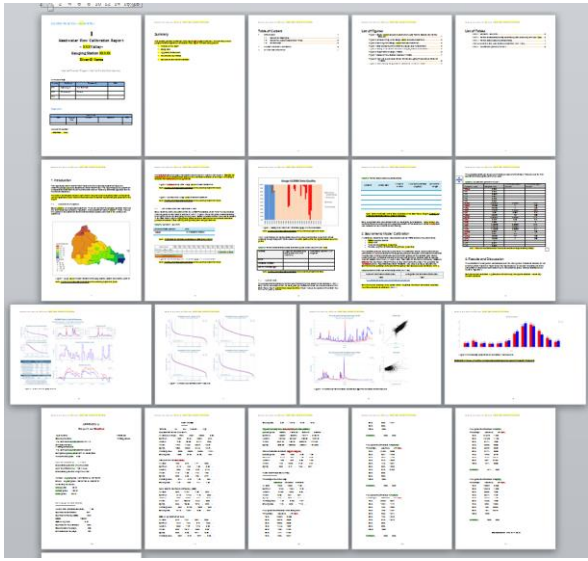


Automation of data pre-processing, model runs and post-processing to enhance efficiency in data analysis, modelling, review of model outputs and reporting

Reporting templates for QA

To ensure that:

- Quality of the data thoroughly reviewed
- every modelling step well documented
- the models are built using available best practice guidelines
- The model building process was transparent
- A well-defined provenance pathway for quality control and assurance was followed
- the locations of all data, model and outputs are recorded



Stakeholder engagement

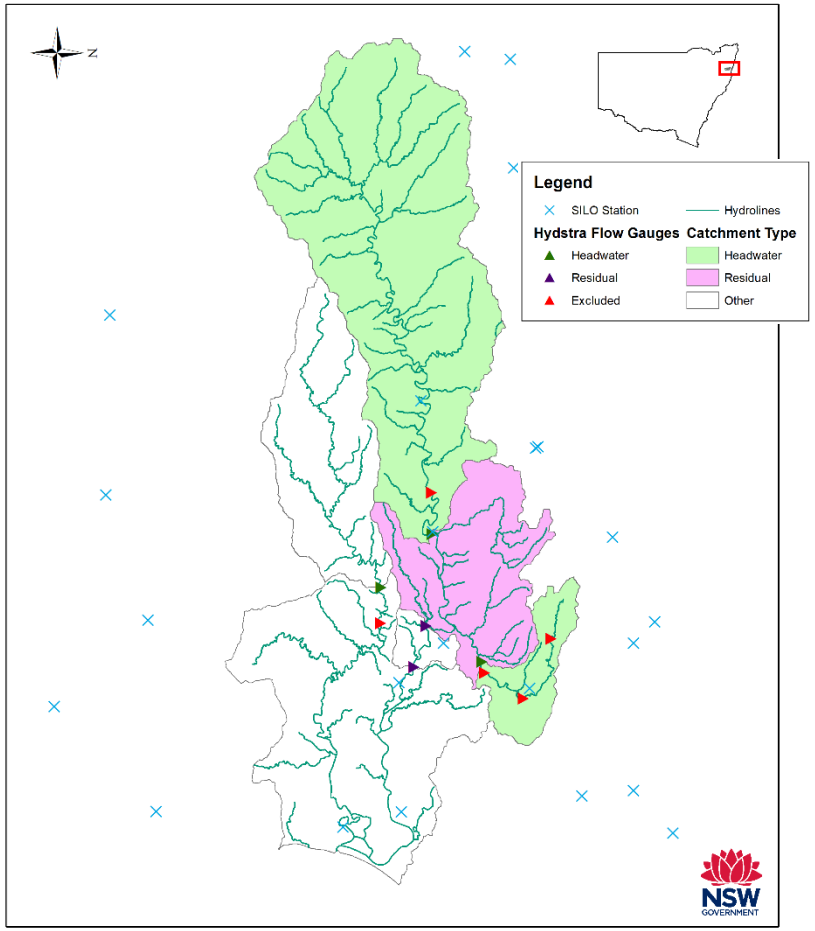
- Principal stakeholders
  - Internal → Exec / Policy and planning, strategies
  - Water users
- Formal engagements
  - Conceptualisation / reach cal / full build
- Independent Review and Audit
  - Upfront agreement on fit-for-purpose criteria
  - Conformance with practice guidelines

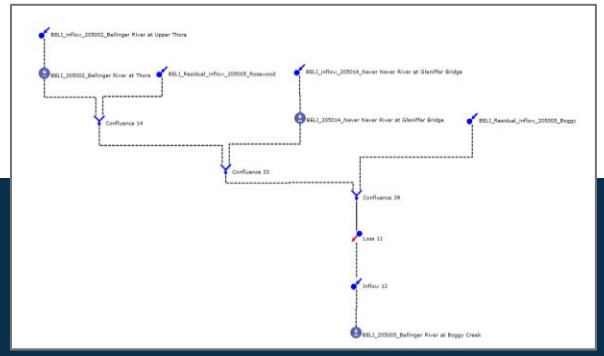
Example – Bellinger WSP

Unregulated Coastal Catchment (North Coast), proximal to Coffs Harbour.

Steps for modelling:

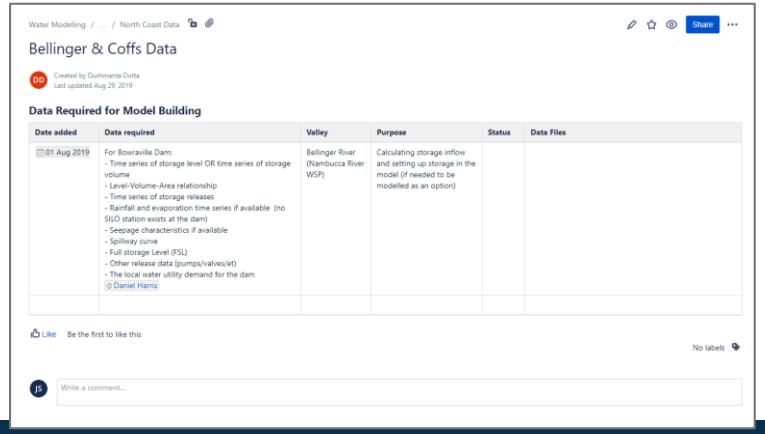
- Data review
- Model Conceptualisation
- Headwater and reach calibration
- Stitched model calibration
- Demand model calibration
- Final model calibration

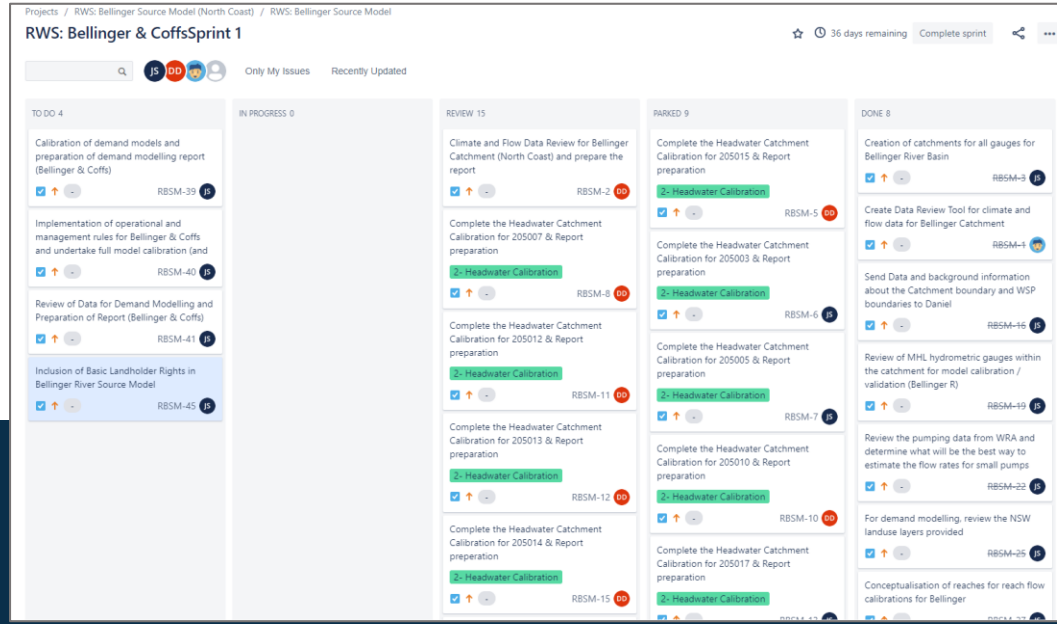




Example – Stakeholder Engagement

- Regular communication with key internal stakeholders
- Model conceptualisation reviewed with the key internal stakeholders (planning team, strategy team).
- Interaction with external stakeholders (water uses) in model build phase
- Stakeholders have access to:
  - Reports for each step of modelling,with key information generated in Workflows.
  - JIRA project board used to communicate project timelines & tasks.
  - Confluence to record details of model build





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Summary

- DPIE Water uses a community of practice in River System Modelling to achieve:
  - Consistency
  - Increases confidence
  - Improved quality of results
  - Transparency
  - Provenance
  - Efficiency
  - Repeatable
  - Stakeholder acceptance

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Thank you for you attention.

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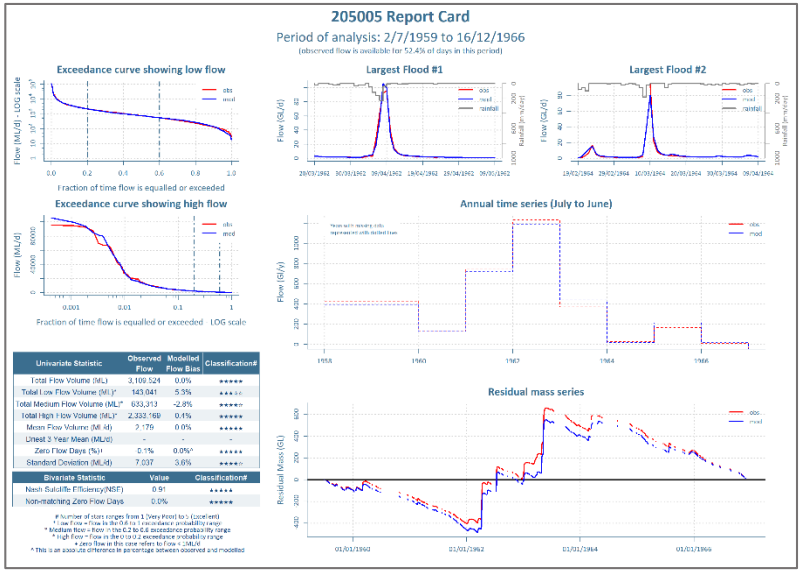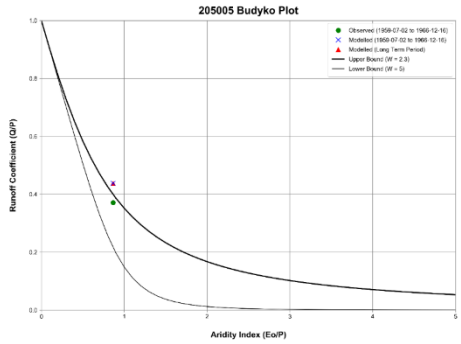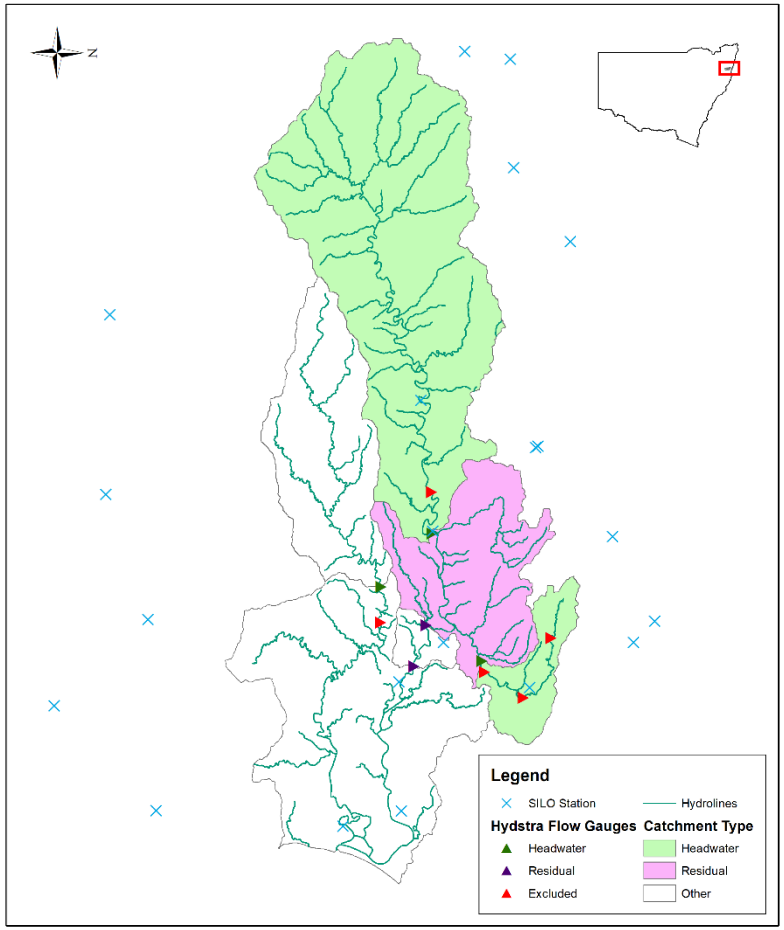
Example – Using Framework