**Business Unit: Water & Catchment Protection
Reporting to: Regional Supply & Flood Modelling Manager**

## Position Purpose

To develop and operationalise contemporary automated probabilistic hydro-climate modelling framework of extreme storms and their hydrologic impact on important declared dams including considerations for climate change, required to support Hydrologic Risk Assessments of rural NSW dams as a part of the broader Portfolio Risk Assessment Program of WaterNSW, and put safety first.

## Key Accountabilities

1. **Safety:** ensure all activities are undertaken with the safety of our people as the number one priority and always role model safe behaviour.
2. **Values:** behave and make decisions in accordance with the WaterNSW Values at all times.
3. Design, develop and implement new operational contemporary modelling system components, tools and products required for regional supply and flood modelling services, especially those relevant to hydrologic risk assessments of all rural declared NSW dams.
4. Update and maintain the existing models, modelling system components, tools and products used for wide ranging applications in regional NSW.
5. Provide support to experienced hydrologic modellers and water resources engineers with quality assured data, modelling tools and automated systems and contribute to adaptive planning of the evolving modelling system needs for services in regional NSW.
6. Establish and maintain high-level standards in designing, developing and maintaining complex scientific applications, particularly those requiring high performance computing environments.
7. Work collaboratively with external Research Partners of WaterNSW, and internal Information Technology Partners to transition state-of-the-art research models into operational modelling systems.
8. Develop, test, integrate, and deploy database interactions and inputs using scripting languages and Azure Dev Ops.
9. Ensure that policies, principles and practices in relation to all elements of WaterNSW are applied in the work area.

## Key Challenges

* A subject matter expert in data science and software engineering who embraces new ways of working across multidisciplinary teams.
* Establishes credibility with experts from different domains and a strong ability to successfully deliver complex project outputs and outcomes against tight timelines.

## Significant Internal Relationships

|  |  |
| --- | --- |
| Stakeholder | Purpose of Relationship |
| Regional Supply and Flood Modelling | * Capacity building and establishing modern practices required to perform computationally intensive modelling tasks in complex projects
* Collaborate with the team and lead modelling system development and maintenance tasks
* Lead development of automated workflows for access to data, quality assurance and modelling tools
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| Business Systems and Information Team | * Support BSI team for developing solution architecture of the modelling systems
* Collaborate with key stakeholders on development of modelling environment and software management systems
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| Dam Safety and Engineering Team | * Collaborate with the team
* Understand user needs, requirements and business context
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| Water System Operations Team | * Collaborate with the team and support technical work required for Water Supply Systems Planning and Operations
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| Catchment Programs | * Collaborate with the team
* Understand user needs, requirements and business context
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## Significant External Relationships

|  |  |
| --- | --- |
| Stakeholder | Purpose of Relationship |
| Research partners | * Proactively engage with research partners, especially those working on the development of new methods for hydrologic risk assessments for major water infrastructure
* Operational deployment of research methods and modelling tools in WaterNSW IT infrastructure
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## Delegations, Financial Accountabilities & Freedom to Act

As defined in the WaterNSW Financial Delegations as varied from time to time.

## WaterNSW Leadership & Performance Competencies

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| --- | --- | --- |
| People | Level |  |
| Communicating with Influence | B | * Tailors communication to suit the audience and uses a range of influencing techniques to build support
* Supports messages with relevant examples, demonstrations and stories
* Communicates issues clearly with different audiences
* Handles challenging questions confidently and constructively
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| Driving Performance | A | * Communicates clear expectations about what is required
* Conducts regular one on one meetings to provide regular feedback on work progress
* Is quick to initiate constructive conversations in relation to performance
* Actively listens to understand before responding
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| Managing Change | B | * Understands risks and opportunities of change and is able to take action to ensure the change is successful
* Understands the range of reactions to change and actively manages these
* Identifies and addresses stakeholder resistance to change
* Communicates key information and wider reasons for change
* Gains stakeholder support and generates enthusiasm about change
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| --- | --- | --- |
| Customer | Level |  |
| Collaboration & Engagement with Customers and Stakeholders | B | * Builds and maintains relationships with individuals from other work groups to accomplish shared goals
* Adapts approach to meet the needs of a broad range of customers and stakeholders
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|  |  |  |
| --- | --- | --- |
| Business | Level |  |
| Analysis & Problem Solving | B | * Defines the extent and cause of the problem through observation and investigation
* Knows when and how to source and use additional information to effectively diagnose the problem and determine suitable solutions.
* Considers all possible solutions and seeks input from subject matter experts where appropriate
* Takes necessary action to implement the identified solution
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## Mandatory Candidate Requirements

**Qualifications:**

* Relevant tertiary qualifications from an Australian educational institution in Data Science, Software Engineering, Computational Science or an equivalent/comparable overseas qualification.
* Current NSW Drivers Licence

**Knowledge:**

* Professional programming skills using agile languages e.g. Python, R and/or MATLAB and also in system languages e.g. C++ and FORTRAN.
* Extensive knowledge of contemporary software development, maintenance and management practices in scientific environment.

**Experience:**

* Demonstrated expertise and experience in designing, developing and operationalising modelling and forecasting systems and tools, preferably for scientific or engineering purposes.
* Demonstrated knowledge and skills in analysing and visualising multi-dimensional large datasets, preferably for scientific or engineering purposes. Experience with scientific data formats e.g. NetCDF and other geospatial data.
* Demonstrated experience in ARC GIS and handling of vector and raster data for scientific applications.
* Excellent skills in oral and written communication including a demonstrated ability to effectively explain complex scientific and system issues to colleagues and research/industrial partners.
* Proven ability to work within a team and collaborate effectively with all internal and external stakeholders, colleagues and clients.

## Favourable Candidate Requirements

* Exposure to stochastic space-time modelling concepts and treatment of uncertainty.
* Knowledge and experience in the use of time series data sets for modelling, such as SCADA, HYDSTRA and real-time online data in water and environment sectors.
* Post graduate qualifications and experience directly relevant to the role and responsibilities of the position.
* Experience in modelling system design, administration and/or development and delivery of publication quality data and graphic products will be considered an advantage.

## Pre-Employment Checks Required

* Identification
* Qualifications
* Drivers Licence
* Referee checks
* Pre-employment Medical (Office based work)
* Police Check