COLLÈGE AURORA COLLEGE

IDENTIFICATION

Department	Position Title	
Aurora College	Aquatic Data Scientist	
Position Number	**Community**	**Division/Region**
91-17615	Yellowknife	Research Division

PURPOSE OF THE POSITION

The Aquatic Data Scientist conceives, designs, and manages important aquatic data management structures that increase the knowledge of emerging threats to northern aquatic environments associated with climate change, which will inform strategies to mitigate and adapt to these issues.

SCOPE

The Aquatic Data Scientist (Scientist) is located in Yellowknife and reports to the Manager, North Slave Research Centre. The Scientist works with other aquatic scientists and researchers at the Aurora Research Institute (ARI) and faculty at Aurora College (College). The incumbent conducts scientific research and data analyses that contribute to infrastructure decisions, environmental management, climate adaptation and mitigation strategies, and applied scientific knowledge.

The Scientist supports ongoing work at the College to evaluate the influence of some of the most disruptive climate change and industrial impacts to northern freshwater environments and to convey this information to the research community, relevant decision-makers and rights holders.

The scientist is responsible for compiling NWT water chemistry, physical lake and terrain data, develops and maintains associated databases, analyzes and synthesizes data. This work supports environmental management planning and academic research, provides information on the state of the NWT environment. By employing responsible data management, data sharing, and quality control practices, the scientist contributes to overall data stewardship at the College. The scientist also collaborates with external academic partners to co-supervise student projects and field activities of importance in the north. Other collaborators include

engineering and environmental consultants and non-profit organizations. The scientist works to advance the goals of the College mandate and strategic plan.

The Scientist may be required to periodically travel by snowmobile, boat, vehicle, fixed-winged aircraft and helicopter to various remote research sites. The incumbent may be required to travel to various College locations.

RESPONSIBILITIES

1. **Lead the development and maintains an aquatic science data management system.**
   - Evaluate and solve aquatic data management problems that are unique in the NWT and within Aurora College.
   - Adhere to Tri-Council standards for research data management and research security.
   - Engage with local, national, and international partners to develop and implement data reporting standards, protocols, and best practices.
   - Implement appropriate quality assurance and quality control methods.
   - Act as systems administrator and ensure timely import of data submitted by others.
   - Seek and secure external funding to sustain data management systems and activities.

2. **Compile, organize, and archive aquatic science data collected in the NWT.**
   - Investigate historical water quality data from projects conducted in the NWT.
   - Compile, organize, and archive aquatic science and related data collected by the Aurora Research Institute, partner organizations, researchers, and industry.
   - Plan and implement data compilation and synthesis projects.
   - Conduct and coordinate data recovery projects and generate data compilations for addition to the large aquatic database.
   - Work with partners and contractors to facilitate water quality compilations.
   - Work with the Manager, North Slave Research Centre to review and publish technical reports, academic peer-reviewed journal papers.
   - Develop proposals, including budgets and schedules, for data compilation and database projects.

3. **Lead and participate in improvements to aquatic data stewardship.**
   - Meet with GNWT departments, regulatory boards, researchers, community members, and industry, on matters related to the collection and stewardship of NWT aquatic science data.
   - Develop tools (e.g., data sharing agreements, Aurora College contracting requirements) that assist in capturing all relevant data.
   - Develop and support territorial, national, and international partnerships to improve aquatic data and information sharing standards.
   - Collaborate with other data managers on digital field data acquisition, management, and archiving strategies.
   - Promote the utility and value of databases to government, industry, regulatory boards, and academic partners.

4. **Support interpretation of scientific data.**
   - Assess scientific data and advise data users of any unusual activity/observations during data collection.
   - Assist College staff with interpretation and display of scientific data, including creation of figures, statistical analyses, and generation of maps.
   - Participate in the publication of scientific documents, including reports, peer-reviewed journal publications, and web content.

5. **Lead terrain mapping and modelling in support of aquatic science research projects.**
   - Develop, implement, and lead research utilizing a range of mapping, remote sensing, modeling, and field-based data collection methods.
   - Develop and implement research projects that map and model landscape terrain features and waterbodies.
   - Administer clerical aspects of project management including working with field staff, financial reporting, acquisition of permits and licenses, and preparing service contracts.
   - Collaborate with local, national, and international partners to develop and implement research projects.
   - Assemble existing data to serve as a framework for interpreting new field, laboratory, and remotely sensed information.
   - Contribute to strategic decision of the aquatic sciences group in the North Slave Research Centre, and future academic programming at Aurora College.

WORKING CONDITIONS

Physical Demands

The Scientist may be required, from time to time, to lift medium weight equipment and supplies (up to 50 lbs). Installation of equipment may require lifting and carrying items (up to 50 lbs), and/or working in awkward positions.

Environmental Conditions

The Scientist may need to work outside (25% of the time). The scientist follows WHMIS and established QCQA lab protocols to limit exposure to hazardous substances, odors, fumes dust, dirt, and excessive noise.

Sensory Demands

Close attention to detail is required when working with data, reading/calibrating sensitive scientific equipment, etc.

Mental Demands

No unusual demands.

KNOWLEDGE, SKILLS AND ABILITIES

- Knowledge of scientific principles and techniques pertaining aquatic research and monitoring, including field sampling of aquatic parameters, field based and remote sensing data acquisition, terrain mapping and analysis.
- Knowledge of northern aquatic ecosystems and the landscape and within lake processes that influence the chemical and biological properties of lakes and rivers across the NWT.
- Knowledge of and/or the ability to acquire and apply knowledge of the primary drivers of change that will influence the future state of aquatic ecosystems in the NWT.
- Knowledge of the methods, techniques, and practices of digital information management, including manipulation, interpretation, digitization, retrieval, and storage of data.
- Knowledge of data management principles and appropriate data structures for aquatic information.
- Knowledge of the roles and needs of other government science departments.
- Knowledge of databases and basic computer coding to upload, search, evaluate, manipulate, and analyze datasets.
- Project management, organizational, and logistical skills to effectively manage and participate in independent and collaborative research projects.
- Analytical skills to describe and synthesize aquatic data and to model data using statistical or numerical methods.
- Field skills that are grounded in best practices in safety management and aquatic research and monitoring.
- Communication skills, both oral and written, in order to generate confidence in solutions offered and technical advice given to staff and researchers when they encounter logistical problems.
- Organizational and time management skills.
- Ability to efficiently use computer hardware and software for data collection, data management, synthesis and modeling, and presentations (e.g. MS Office; ArcGIS; specialized graphic design, statistics, and modelling software; database software).
- Teamwork and collaborative abilities.
- Ability to commit to actively upholding and consistently practicing personal diversity, inclusion and cultural awareness, as well as safety and sensitivity approaches in the workplace.

Typically, the above qualifications would be attained by:

A Master of Science (M.Sc.) degree in Computer Science (Data analysis), Biology, Geography, or related field, and three (3) years of work experience in industry, academia, or a government agency in a related capacity.

Equivalent combinations of education and experience will be considered.

ADDITIONAL REQUIREMENTS

Position Security

☐ No criminal records check required
☒ Position of Trust – criminal records check required
☐ Highly sensitive position – requires verification of identity and a criminal records check

French language (check one if applicable)

☐ French required (must identify required level below)
Level required for this Designated Position is:
ORAL EXPRESSION AND COMPREHENSION
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
READING COMPREHENSION:
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
WRITING SKILLS:
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
☐ French preferred

Indigenous language: Select language

☐ Required
☐ Preferred