



IDENTIFICATION

Department	Position Title	
Environment and Climate Change	Aquatic Quality Analyst	
Position Number	Community	Division/Region
23-14245	Yellowknife	Water Monitoring and Stewardship/HQ

PURPOSE OF THE POSITION

The Aquatic Quality Analyst supports the design, implementation, and reporting of water quality and aquatic ecosystem health monitoring programs in the Northwest Territories (NWT). This role advises and contributes to achieving the goals of the NWT Water Stewardship Strategy, assists in various aquatic monitoring including community-based monitoring, and ensures scientific data are collected, analyzed, and communicated to inform decision-making.

SCOPE

Located in Yellowknife and reporting to the Senior Aquatic Quality Scientist within the Water Monitoring and Stewardship Division, the Aquatic Quality Analyst supports the planning, execution, and continuous improvement of territorial water and aquatic monitoring and research programs across the NWT. The incumbent contributes to program design, coordinates sampling logistics and laboratory submissions, provides technically sound data quality assurance/quality control (QA/QC), manages databases and metadata, performs statistical and geospatial analyses, and prepares technical data products, visualizations, and reporting outputs that advise decision-making related to water and aquatic quality.

The Department of Environment and Climate Change (ECC) works to promote and support the sustainable use and development of natural resources and to protect, conserve, and enhance the NWT environment for the social and economic benefit of residents.

Within ECC, the Water Monitoring and Stewardship Division bears the primary roles and responsibilities related to water-related research and monitoring, providing advice to co-management partners, water quality and quantity data analysis and interpretation, and water stewardship and planning. The Water Monitoring and Stewardship Division, in cooperation with Environment and Climate Change Canada (ECCC) and other federal, territorial, Indigenous, and academic partners, is responsible for collecting and interpreting information about water quantity and quality and aquatic ecosystem health in the NWT. The Division works with its



water partners on a collaborative approach to water stewardship and planning in the NWT, including transboundary water management agreements.

The NWT is the ultimate downstream jurisdiction within the Mackenzie River Basin (MRB). The MRB drains an area that consists of approximately one-fifth of Canada's land mass. It is one of the largest river basins in the world and is subject to industrial activity which has the potential to influence water flow and quality. It is experiencing the brunt of climate change as one of the nation's northern watersheds. Water is one of the necessities of all life. Healthy and abundant water is needed for healthy and abundant ecosystems. Reliable, accessible information about water and aquatic ecosystems underpin assurance of community well-being and traditional practices. Territorial and national guidelines and standards provide benchmarks for assessing water quality for the protection of aquatic life and human uses. The *Northern Voices, Northern Waters: NWT Water Stewardship Strategy* (the Water Strategy) and its Action Plan guide a collaborative and evidence-based approach to stewardship and planning. The Analyst advances these objectives by ensuring high-quality data, transparent analytics, and timely information delivery that illuminate status, trends, drivers, and risks related to water and aquatic quality.

The Analyst operates within a legislative, policy, and program framework that includes the *Waters Act*, the Water Strategy and Action Plan, the *2030 NWT Climate Change Strategic Framework*, and relevant transboundary water management agreements, as well as other GNWT and ECC policies.

The Analyst works closely with the Senior Aquatic Quality Scientist and colleagues across the Division and Department. The incumbent collaborates with other GNWT departments (e.g., Municipal and Community Affairs, Health and Social Services), federal agencies (e.g., ECCC, Fisheries and Oceans Canada), Indigenous governments and organizations, other provinces/territories, and academic partners. The Analyst assists with community and public engagement through supporting data sharing, plain-language summaries, and responsiveness to local information needs.

The Analyst plays a critical role in transforming field and laboratory results into accurate, well-documented datasets and clear, actionable insights that support internal decision-making, co-management processes, and public reporting. The incumbent meets regularly with the Senior Aquatic Quality Scientist to receive assignments, provide technical updates, and offer advice and recommendations on data methods, tools, and quality improvements. The Analyst supports field logistics, sampling campaigns, data stewardship and quality assurance and control, data analysis and visualization, and reporting and communications.

The position carries meaningful technical latitude to organize work, apply established Standard Operation Procedures (SOPs), and recommend improvements to data processes and analytics. Activities are undertaken in accordance with best practices in field safety, data management,



research ethics, and scientific methodology, while meeting the needs of GNWT departments, communities, and residents for reliable, timely, and accessible aquatic quality information.

RESPONSIBILITIES

1. Collaborates in the development and application of standards for data collection, quality assurance and control, metadata, and data management practices.

- Leads the development, implementation, and maintenance of data collection standards, quality assurance and quality control (QA/QC) procedures, metadata, validation processes, and reproducible analytical workflows for water quality and aquatic health data.
- Compiles, validates, edits, documents, and integrates data from multiple internal and external sources into GNWT databases and applications in accordance with divisional and GNWT data management standards.

2. Contributes to the analysis and interpretation of water quality and aquatic health data to support assessments and program reporting.

- Conducts statistical and geospatial analyses to support status and trend assessments, and program reporting.
- Develops storyboards, maps, figures, and other data products, and assists with data interpretation under the direction of Aquatic Quality Scientists.
- Reviews and prepares monitoring data for submission to recognized repositories, including Lodestar and Mackenzie DataStream.

3. Works collaboratively with internal and external partners to strengthen data management capacity and program delivery.

- Works collaboratively with GNWT staff, Indigenous governments and organizations, regulatory boards, industry, and territorial, federal, academic, and international partners to develop and apply data standards, protocols, and best practices.
- Provides guidance and technical advice to headquarters and regional staff on data management practices and supports efforts to secure external funding to sustain data systems and activities as required.

4. Supports monitoring programs by compiling, quality-checking, and managing data, assisting with interpretation and trend analysis, and contributing technical input to environmental reviews and assessments.

- Compiles, validates, and manages water quality and aquatic health data from field sampling and monitoring stations.
- Perform preliminary quality control checks and flags anomalies.



- Assists with data interpretation, trend analyses, and simple statistics under the supervision of senior scientists.
 - Contributes technical reviews to environmental assessments related to development projects.
- 5. Supports the development of high-quality technical and public-facing information to effectively communicate water quality information to diverse audiences.**
- Supports the preparation of high-quality technical reports, figures, maps, web content and other information products to meet project objectives and deadlines.
 - Prepares technical presentations and reports in both scientific and plain language, as well as non-technical educational and promotional materials to communicate findings to decision-makers, partners, and the public.
- 6. Supports and contributes to engagement, training, and knowledge-sharing activities with aquatic research and monitoring partners.**
- Participates in meetings and engagement activities with GNWT departments, industry, regulatory boards, researchers, Indigenous governments and communities to support the collection, interpretation, and communication of NWT water quality data.
 - Supports the delivery of workshops, technical sessions, and training activities as required.
- 7. Supports and leads field campaigns for aquatic monitoring.**
- Assists the Lead Coordinator in planning logistical needs for field campaigns: transport, safety, coordination with partners.
 - Conducts site and safety assessments (boat, ice, and air operations),
 - Ensures safe field operations by following established safety protocols and reporting hazards.
 - Calibrates field instruments in accordance with SOPs preservation requirements,
 - Maintains and inventories gear.
 - Performs field QA/QC (blanks, duplicates, calibration checks).
 - Documents activities in defensible field logs and digital forms.
 - Installs, calibrates, maintains, and retrieves data from water quality monitoring instruments.
 - Provides technical assistance in monitoring activities alongside community monitors and seasonal staff.
- 8. Works with communities to ensure that fieldwork and monitoring conducted by the Division addresses their needs.**



- Coordinates engagement activities with communities, Indigenous governments, and Indigenous organizations to identify community questions and priorities for local water monitoring programs.
- Supports the implementation of aquatic research and monitoring programs with communities and Indigenous governments and Indigenous organizations across the NWT.

WORKING CONDITIONS

Assumptions are that the incumbent is reasonably suited to the job and performs competently, and that all appropriate measures have been taken to mitigate undesirable working conditions.

Physical Demands

The incumbent will usually work in a normal office environment with intermittent field work. In the summer field season, the incumbent will be hiking over rough terrain with a backpack and collected samples (up to 50 pounds) for up to eight hours per day, up to twelve weeks per year; will be travelling in small aircraft and helicopters for up to eight hours per day, up to three weeks per year; will be travelling in small watercraft for up to one hour per day, up to three weeks per year. In the winter field season, work involves travelling by snowmobile, work at extreme cold temperatures, and operation of one-person ice augers or other equipment.

Environmental Conditions

The incumbent will usually work in a normal office environment with intermittent field work. While in the field, the incumbent can be exposed to: rapidly changing weather and to conditions such as cold (hypothermia), intense sun (burn), wind, rain; helicopters, airplanes, ATVs, road vehicles (physical injury, hearing loss, gas/fumes); insects and insect bites; dangerous, unforeseen, uncontrolled field situations such as vehicular accidents, attack by wild animals, falls; and other accidents while on hiking (cuts, muscle sprains, broken bones, etc.). The incumbent will be exposed to these environmental conditions every day up to three weeks per year.

The incumbent will be exposed to noise from helicopters, airplanes, ATVs, snowmobiles, and outboard motors as well as other equipment such as ice augers, chainsaws, firearms, and generators. The incumbent will be exposed to these noise conditions every day up to three weeks per year.

Sensory Demands

The incumbent will usually work in a normal office environment with intermittent field work.



Mental Demands

The incumbent will usually work in a normal office environment with intermittent field work. From May to August there is expectation of some field-based work where the incumbent is subject to disruption of family life due to field work in distant or remote locations. The incumbent is also responsible for the continuous management of scientific and logistical activities and safe work practices while in the field, including the prediction and mitigation of potentially hazardous situations and managing personality conflicts amongst field staff. The incumbent will be exposed to these demands every day up to three weeks per year.

The incumbent is also required to present research or work plans to scientific peers, collaborators, community groups, etc. and may attend workshops or research meetings in southern Canada two to four times per year.

From time to time the incumbent may be responsible for responding to media inquiries on water and aquatic quality monitoring and research projects, including findings.

KNOWLEDGE, SKILLS AND ABILITIES

- Knowledge of scientific measurement equipment and analysis techniques.
- Knowledge of current approaches to monitor the aquatic environment.
- Knowledge of current NWT water initiatives, such as the NWT Water Stewardship Strategy and Action Plan, Climate Change Strategic Framework and Action Plan, NWT Cumulative Impact Monitoring Program and Healthy Land, Healthy People.
- Knowledge of land claim, resource and self-government agreements in the context of northern water management.
- Knowledge of the cross-cultural environment and its effect on communication and effective working relationships with Indigenous people in communities, Indigenous governments and Indigenous organizations and other agencies.
- Knowledge of methods to review, analyze and screen raw data for quality control and quality assurance.
- Knowledge of technical and plain language report writing methods, practices and standards.
- Knowledge of water resource management methods and practices to provide to scientists to resolve issues pertaining to water supply, snow, floods, environment, water usage, and inter-jurisdictional waters.
- Knowledge of computer systems and commercial/specialty software applications including Geographic Information Systems (GIS); statistics packages; spreadsheets; databases and word processing.
- Knowledge of arctic survival, transportation of dangerous goods, first aid, firearms, remote communications, equipment repair and navigation techniques.



- Written and verbal communication skills are essential to relaying scientific information to clients in a succinct yet detailed and accurate fashion and to interact with partners, academics, consultants and government.
- Ability to deliver presentations.
- Ability and experience driving a boat and other recreational vehicles in remote areas (e.g. snowmobile, quads).
- Ability to supervise summer students and/ or community members.
- Ability to produce clear maps, charts, and tables (e.g., using R, Excel, GIS, or similar).
- Ability to work both independently and collaboratively in field and office environments.
- Ability to travel to remote field locations, sometimes under challenging conditions.
- 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:

Bachelor's degree in environmental science, biology, chemistry, ecology, aquatic science, or a related discipline and 2 years of related work experience preferably performing data analysis, water quality modeling, or GIS, working in the field and working with Indigenous communities or in community-based environmental programs.

Equivalent combinations of education and experience will be considered.

ADDITIONAL REQUIREMENTS

Position Security (check one)

- ☒ 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