IDENTIFICATION

Department	Position Title	
Environment and Climate Change	Senior Aquatic Quality Scientist	
Position Number	**Community**	**Division/Region**
23-14247	Yellowknife	Water Monitoring and Stewardship/HQ

PURPOSE OF THE POSITION

The Senior Aquatic Quality Scientist (Senior Scientist) is the principal scientist accountable for providing authoritative scientific and strategy advice regarding multiple and diverse water and aquatic quality monitoring and research programs, data interpretation/analysis and reporting activities for the Northwest Territories (NWT), and for supervising aquatic scientists within the Division.

The Senior Scientist is responsible for ensuring the aquatic monitoring needs of the Department and NWT residents are met while maintaining relationships, partnerships and engagement requirements with other government agencies, other jurisdictions, northern communities, Indigenous governments and Indigenous organizations and academics.

SCOPE

Located in Yellowknife and reports to the Director, Water Monitoring and Stewardship (Director), the Senior Aquatic Quality Scientist is the principal water quality and aquatic specialist within the Government of the Northwest Territories (GNWT) and leads and manages a team of staff, contractors, and working groups to develop, implement and coordinate territorial strategies, policies, programs and projects that support the aquatic monitoring goals and objectives of the GNWT. The Senior Scientist coordinates, leads, plans, designs and is responsible for overseeing the implementation of all water quality and aquatic health research and monitoring programs initiated by the Water Monitoring and Stewardship Division. The Senior Scientist is the main point of contact for water quality and aquatic health related inquiries.

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 all residents.

The Water Monitoring and Stewardship Division, in cooperation with Environment and Climate Change Canada (ECCC) and other federal and territorial departments, is responsible for collecting and interpreting information about water quantity and quality and 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 Northwest Territories (NWT) is the ultimate downstream jurisdiction in the Mackenzie River Basin (MRB). The MRB drains an area that consists of a 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. If water quality remains exceptional, the health of fish, wildlife and all flora is preserved. For humans, good quality water is necessary for drinking and food preparation. Guidelines and standards for assessing water quality are available for water quality assessments across the globe, including Canada. To ensure the quality of NWT's water, *Northern Voices, Northern Waters: NWT Water Stewardship Strategy* (the Water Strategy) was developed and implemented. The Water Strategy is a made-in-the-North strategy developed collaboratively with water partners in the NWT and guides the activities and actions of the Senior Scientist. Another key role of the Senior Scientist is overseeing the implementation of the NWT-wide Community-based Water Quality Monitoring (CBM) program including partnership building and program support to ensure the program is appropriately meeting the needs and questions of our community partners.

The Senior Scientist works within a legislative, regulatory and policy framework that includes the: *Waters Act*, *Environmental Protection Act,* NWT Water Stewardship Strategy and Action Plan, 2030 NWT Climate Change Strategic Framework and Action Plan, as well as other GNWT and ECC policies and programs, including transboundary water management agreements with neighboring jurisdictions.

The Senior Scientist collaborates closely with the Senior Hydrologist and the Lead Coordinator, as well as other colleagues in the Water Monitoring and Stewardship Division. The Senior Scientist works collaboratively with colleagues within Department and at times senior officials at other Departments such as Municipal and Community Affairs and Health and Social Services. The Senior Scientist also regularly works with federal agencies such as ECCC and Fisheries and Oceans Canada as well as with external contacts (e.g., Indigenous governments and Indigenous organizations, other provinces/territories scientists and academia). The Senior Scientist also has a high degree of engagement with communities and the public because of the impact of water quality on drinking water and traditional foods (e.g., fish, wildlife).

The Senior Scientist is often called upon by senior management, community leaders and other GNWT departments to provide analysis and advice based on extensive scientific knowledge and experience. The Senior Scientist must keep up to date on research, science, Indigenous knowledge, new monitoring technologies and new analytical methodologies related to water quality and biological monitoring. The Senior Scientist is also responsible for overseeing the testing and implementing of new techniques and methodologies to assess water quality and aquatic health in the NWT. The Senior Scientist conducts peer reviews of scientific papers, presents results and publishes results that can be in the form of technical reports, scientific papers, or plain language reports on the water quality, aquatic ecosystems and aquatic ecosystem health in the NWT.

The Senior Scientist uses sound research and scientific methodology in the development of models and approaches to assess water quality in the NWT that meets the goals of ECC's Strategic Plan and supports/reflects the mandate of the Department, the GNWT and the people of the NWT. The Senior Scientist has significant latitude in terms of scientific research, study, models, and applied technologies to accurately assess water quality, aquatic health and risks to water resources in the NWT, such as from climate change. The Senior Scientist would be the lead representative on intra- and inter-governmental working groups and committees responsible for administration of the water quality networks and guidelines. The incumbent would take a lead role in overseeing data analysis, reporting, data sharing and mentoring staff within the unit.

The Senior Scientist is regularly called upon to address or delegate local, national, and international media requests including written, oral, and video responses. Work is performed under the general direction of the Director. Sound judgment is required, particularly when speaking on behalf of the GNWT and during interactions with partners, stakeholders and rights holders including Indigenous governments and Indigenous organizations.

RESPONSIBILITIES

1. **Provides strategic scientific oversight and supervision to the design and implementation, evaluation and integration of water quality and aquatic health monitoring and research programs.**
   - Designs and implements comprehensive and logistically complex water quality and aquatic monitoring and research programs as both the primary investigator and as a scientific collaborator, often in remote areas.
   - Maintains communications with other government agencies, non-government organizations and academics to identify new research and funding opportunities.
   - Leads and oversees the implementation of water and aquatic monitoring as part of the NWT Water Stewardship Strategy, CBM program and Bilateral Water Management Agreements.

- Provides advice and oversight to Aquatic Quality Scientists, Transboundary Aquatic Ecosystem Scientist and Watershed Partnership Scientist in conducting fieldwork, capturing, and managing field data, and developing scientific findings.
- Develops and maintains partnerships with Indigenous governments, Indigenous organizations, co-management boards, academic institutions, and others to collect information necessary for the implementation of all NWT water quality monitoring programs (e.g. transboundary, long-term, CBM, etc.).
- Evaluates collaborative research proposals and makes recommendations regarding potential support.
- Organizes project teams ensuring that financial and human resources are managed appropriately.
- Leads the development of water quality objectives and interpretation of water quality trend assessments in collaboration with external agencies and scientists (e.g., ECCC, other jurisdictions, contractors).
- Conducts periodic review of monitoring networks and data to ensure that the monitoring sites and frequencies are appropriate, and redundancy is reduced.
- Develops standard operating procedures, is responsible for recruitment activities, staff supervision, financial reporting and preparation of service contracts.
- Engages with local communities and land managers to share information and obtain clearances.
- Develops comprehensive field safety plans and protocols for research and monitoring teams and ensures they are rigorously followed.
- Oversees the collection and management of data using best-practice guidelines and standards.

2. **Provides specialized advice, as the GNWT's subject matter expert on water and aquatic quality, to internal clients, technical committees, and external stakeholders.**
   - Departmental lead on water and aquatic health.
   - Makes recommendations, provides expertise and professional advice to senior management and other GNWT Departments, and represents the Department on federal/provincial/territorial working groups, project teams and committees, including the Canadian Council of Ministers of the Environment and the Mackenzie River Basin Board, as well as to other relevant committees at the multi-jurisdictional and national levels, as necessary.
   - Drafts and reviews briefing materials, policy and decision papers, and other government documents and requests for information as required.
   - Leads planning, coordination and decision-making meetings and activities throughout the NWT regarding water quality and aquatic health.
   - Prepares or provides final review of scientific and technical reports outlining the findings of water monitoring programs and aquatic health research in the NWT, which can include data reports, scientific papers, or plain language summaries.

- Conducts peer review of scientific papers, technical reports, or funding applications.
- Provide assessments of the impact of climate change on the water quality and aquatic health.
- Oversees the collection, tracking, and evaluation of data based on best-practice guidelines, standards, process reviews, and policy changes to analyze and identify territorial, regional, and program-specific issues.

3. **Promotes monitoring and research partnerships and collaborations**.
   - Develops and refines a long-term vision and mandates and creates shorter-term (e.g., annual) operational goals and objectives to develop research capacity.
   - Manages administrative aspects of research projects, which may include: supervision of field staff, the acquisition of permits and licenses, and consultation with local communities.
   - Maintains regular contact with Scientists within the unit to provide constant critical feedback of work underway and to support the completion of high-quality work.
   - Provides peer reviews of reports and analyses as the principal for water and aquatic quality sciences within the division. Provides positive leadership and advice to unit and divisional staff.
   - Develops and cultivates positive and productive relationships with government agencies, Indigenous governments and Indigenous organizations, academia and private sector for developing, funding, and implementing research activities.
   - Develops and cultivates positive and productive relationships with academic funding councils and associations.
   - Develops funding proposals, including budgetary submissions, to support monitoring and research projects in the NWT.
   - Coaches, mentors, and provides technical advice to aquatic scientists. Ensures Scientists in the unit have the necessary tools and training to perform their duties safely and effectively.
   - Ensures cost-effective, efficient and safe work practices in the field and office.

4. **Develops communications and publishes and presents scientific findings and data from monitoring and research across the NWT.**
   - Provides media briefings and responds to media inquiries to provide scientific information and updates about water quality and aquatic health.
   - Prepares or reviews briefing materials, communication products and media responses related to water quality and aquatic health research and monitoring programs and findings in the NWT.
   - Prepares and presents research and monitoring research results at professional scientific meetings, conferences and workshops to various levels of government, communities and groups as part of information sharing and outreach activities.

- Organizes and conducts project workshops, technical sessions, and training exercises as required in the NWT.
- Participates in national and international technical workshops, forums, sessions, and training exercises, as required.
- Prepares non-technical promotional and educational materials about water quality and aquatic health in the NWT.
- Disseminates information on the potential impacts of climate change on water quality and ecosystem health to both technical and non-technical audiences.
- Compiles data and prepares technical and plain language written reports, graphs, and charts.

5. **Manages financial and administrative functions to provide effective and efficient services within budgetary frameworks.**
   - Manages human resource functions within the group, including staffing processes, development of employee objectives and performance indicators, and review of individual staff goals and training needs.
   - Provides positive leadership and guidance on a broad range research and monitoring activities.
   - Develops and submits funding and human resources proposals should additional human resources be required.
   - Manages the annual budget for the unit (~$500,000 O&M) and projects future budget requirements in a fiscally responsible manner.
   - Oversees contract management and procurement for the group, including reviewing terms of reference and statements of work to direct contractors.

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 8 hours per day, up to 3 weeks per year; will be travelling in small aircraft and helicopters for up to 8 hours per day, up to 3 weeks per year; will be travelling in small watercraft for up to 1 hour per day, up to 3 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 traverse (cuts, muscle sprains, broken bones, etc.). The incumbent will be exposed to these environment 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 the requirements of conducting 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.

The incumbent is also required to respond to media inquiries on water quality and aquatic health research and monitoring including assessments of water quality and ecological integrity of water entering the NWT from upstream jurisdictions.

KNOWLEDGE, SKILLS AND ABILITIES

- Knowledge diverse and complex elements of water quality and aquatic research and monitoring including data management and statical analysis.
- Knowledge of current approaches and methodologies used to monitor, assess, or predict the nature and extent of impacts on the aquatic environment, to collect and interpret

water quality and aquatic health indices to support water management approaches and objectives.
- Knowledge of NWT legislation, Indigenous governments and Indigenous organizations and land claims, institutions, government systems and communities.
- 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 Knowledge Agenda.
- Ability to work in cross-cultural environments and develop effective communications and working relationships with Indigenous governments and Indigenous organizations and other agencies.
- Demonstrated knowledge of recent advances in research and analytical approaches contained in published literature, including conservation, northern ecology, aquatic health studies, ecological statistical methodologies, and ecosystem assessments.
- Experience seeking funding from multiple sources to support research and monitoring programs.
- Ability to manage people and financial resources and budgeting.
- Ability to lead multi-disciplinary teams, supervise technical staff and/or students.
- Ability to produce scientific reports of high technical quality suitable for publishing in external journals or through government reports/information pieces.
- Knowledge of current technical and scientific literature on contaminants and environmental fate with particular emphasis on northern environments.
- Knowledge of computer systems and commercial/specialty software applications, statistics packages, spreadsheets, databases, and word processors.
- Knowledge of arctic survival, transportation of dangerous goods, first aid, safe firearm handling and use, remote communications, equipment repair, and navigation techniques.
- Knowledge of analytical skills to modify methods, techniques and practices, generate independent research results, and/or validate the research findings generated by others.
- Proficiency with verbal communication to relaying scientific informationto clients in a succinct yet detailed fashion and to interact with partners, academics, consultants and government.
- Ability to work in an autonomous, flexible, discreet, and trustworthy fashion.
- Ability to communicate scientific information clearly and effectively in a variety of forms including visual, oral, and written formats and at an appropriate level for the respective audience.
- Ability to develop technical and scientific workplans to guide research and monitoring programs for the NWT in a cost-effective way.
- Ability and experience engaging with Indigenous governments and Indigenous organizations and local communities to determine water quality and aquatic health research and monitoring priorities and disseminate research and monitoring results.

- 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:

Completion of a graduate degree (M.Sc.) in environmental science or water management, with at least five (5) years of progressive experience in water quality and aquatic sciences.

Equivalent combinations of education and experience will be considered.

Assets include:

- Past relevant experience writing peer-reviewed scientific publications and presenting the results of scientific work to colleagues.
- Past relevant experience working with communities and Indigenous governments and Indigenous organizations on monitoring and research programs in the NWT.
- Past relevant experience managing multidisciplinary research teams and scientist.

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