

New

Ministry

Environment and Protected Areas

Describe: Basic Job Details

Position

Position ID

0000000

Position Name (30 characters)

Wetland Science Team Lead

Requested Class

Scientific 4

Job Focus

Operations/Program

Supervisory Level

01 - Yes Supervisory

Agency (ministry) code

00000

Cost Centre

00000

Program Code: (enter if required)

Employee

Employee Name (or Vacant)

Vacant

Organizational Structure

Division, Branch/Unit

Resource Stewardship/ Oil Sands Monitoring Branch

Current organizational chart attached?

Supervisor's Position ID

5

Supervisor's Position Name (30 characters)

Dir, Environ Science&FieldOpe

Supervisor's Current Class

Senior Manager (Zone 2)

Design: Identify Job Duties and Value

Job Purpose and Organizational Context

Why the job exists:

The Wetlands Science Team Lead (Scientific 4) position is accountable for safe and effective delivery of monitoring, evaluation, and reporting, with a specialization in wetland ecosystems under the Oil Sands Monitoring (OSM) Program delivered by the Oil Sands Monitoring Branch. This position is responsible for providing scientific expertise and leadership to support the legislated science mandate, "to develop and implement an environmental science program to monitor, evaluate, and report on the condition of Alberta's ambient environment" (Section. 15.1(1) Environmental Protection and Enhancement Act, 2016). The position is also responsible for leading the development and delivery of long-term monitoring programs, as well as implementation of focused studies in wetland ecosystems. This role ensures that the OSM Program and its partners and stakeholders, including the Government of Alberta, receive scientifically credible and relevant information needed to responsibly manage wetlands in Alberta's oil sands region through protecting water quality, ensuring safe habitats for wildlife, fish and plants, and sustaining biodiversity, in the face of increasing pressure from industrial development, a growing population, climate change, and other pressures.

A key aspect of this role is to function in a team lead capacity providing scientific leadership and guidance to a small team of junior wetland scientists to achieve the strategic goals of the OSM Program and Branch direction. This position may also contribute to other relevant monitoring programs under the Ministry of Environment and Protected Areas

Key outcomes of this Scientific 4 position are: generating novel scientific ideas and approaches to be pursued by other scientists within OSM, the Government of Alberta, and nationally; providing expert advice on scientific program and project design; leading large-scale, multi-year scientific programs that bridge scientific disciplines; and publishing scientific findings on the condition of the environment across media. The Wetland Science Team Lead (Scientific 4) will

be regularly invited to present at scientific meetings and conferences, publish peer-reviewed papers, and provide expert advice to OSM leadership on the cumulative impacts of human activity on water quality and quantity. The position is for a recognized scientific expert in their fields of research at the national level and regularly collaborates with peers in academia through the supervision of graduate students and postdoctoral fellows and through appointment as adjunct faculty at one or more post-secondary institutions.

Responsibilities

The Wetland Science Team Lead (Scientific 4) understands the functionality of wetlands, and how human and natural activities influence a wetland's ecological condition. This Scientific 4 role is responsible for four (4) core results related to the physical, chemical, and biological properties of wetland ecosystems delivered by the Oil Sands Monitoring (OSM) Branch: **Design, Planning, Delivery, Evaluation and Reporting**. These responsibilities include:

1. Design: applies expert knowledge of the functionality of wetlands and wetland ecology to lead the development, review and continuous improvement of long-term wetland monitoring programs as well as relevant focused studies that address issues of concern to the OSM Program and by extension the Government of Alberta. The end result is an internationally recognized wetland monitoring program that supports the government's business mandate, including:

- Working with OSM leadership, scientists and the larger scientific community to prioritize wetland monitoring program design that is aligned with OSM needs, and emerging priorities identified by the international scientific community.
- Ensuring integration between wetland monitoring and focused study programs and other environmental monitoring under the OSM Program and Environment and Protected Areas at large;
- Addressing recommendations of the OSM Technical Advisory Committee (TAC), the Science and Indigenous Knowledge Integration Committee (SIKIC) and the Oversight Committee (OC). The position may be required to present scientific plans and findings to diverse audiences;
- Working with leadership, scientists and staff in other EPA Branches to ensure innovative, scientifically credible research and monitoring protocols are conceived and deployed in OSM wetland monitoring and science programs. The Wetland Science Team Lead (Scientific 4) will oversee the scientific work of junior wetlands scientists and support a culture of scientific excellence in monitoring, evaluation, reporting, and innovative research relevant to the OSM Program;
- Working with diverse OSM science teams and other Branch staff to support braiding between western science and indigenous wisdom in the design and implementation of wetlands monitoring programs;
- Developing and publishing conceptual models based on the latest science that summarize the known and hypothesized responses of wetlands ecosystems to environmental variation and anthropogenic stressors including climate change, land use, contaminants, etc.

2. Planning: completes multi-year research and monitoring plans that are driven by scientific questions to assess the condition of wetlands ecosystems in the oil sands region of Alberta, including scientific evaluations of the anthropogenic impacts and ecological drivers e.g. climate change. Activities include:

- Completing annual project plans and budgets for OSM wetland monitoring and research projects, that articulate outcomes, activities, schedules and resource requirements;
- Leveraging scientific and technical capacity within the OSM Branch, EPA and international scientific community to build high-functioning teams that ensure projects are credible and relevant;
- Ensuring short-term focused studies and research projects contribute to large-scale understanding of wetland ecology within the oil sands region of Alberta;
- Identifying innovative methods to observe and measure wetland ecological conditions by staying up to date with the latest science and frequent interaction with international scientists;
- Leveraging OSM budgets for wetland ecosystem monitoring and research by reviewing as well as preparing and submitting research grant applications.

3. Delivering: ensures long-term wetland monitoring and research programs are delivered in a safe and effective manner. The end result is safe and timely completion of deliverables within the available budget. Activities include:

- Collaborating with scientific and technical staff in the OSM Branch by visiting field sites and analytical labs, and meeting with staff to anticipate and troubleshoot scientific and technical challenges encountered during program delivery, including providing ongoing data validation of wetland monitoring data;
- Coordinating the involvement of indigenous community members and volunteers;
- Developing and managing grants and contracts with delivery partners and vendors;
- Considering and incorporating Occupational Health and Safety in all aspects of program delivery.

4. Evaluation and Reporting - Develops, leads and actively participates in the analyses and completion of scientifically credible environmental data evaluation and reporting that meet project plan commitments and legislated reporting requirements. The end results are OSM technical reports, synthesis reports, contributions to the State of the Environment reports and peer-reviewed papers in international journals. Activities include:

- Developing the conceptual design, analytical approaches and implementation of robust analyses of wetland monitoring data to support standard and non-standard reporting products, including integration with other disciplines including, not limited to groundwater, biodiversity, air and deposition as well as surface water.
- Leading and/or participating in the communication of major observations and conclusions of long-term monitoring and focused research activities on the condition, status and trends of Alberta's wetlands including but not limited to primary and collaboratively authored peer-reviewed scientific papers, technical and state of the environment reports, major scientific synthesis reports, and plain-language summary documents;
- Collaborating with internal and external scientific experts on additional evaluation of, and reporting on, wetland monitoring datasets to ensure scientific linkages with programs and interpretations employed elsewhere in Canada, and internationally;
- Preparing and providing credible and defensible scientific content for meetings, workshops, conferences, web pages, and briefing packages;
- Chairing scientific boards, panels and committees at the regional level;
- Participating at the provincial and national level in scientific committees and task forces requiring wetland scientific expertise specific to Alberta;
- Effectively communicating complex scientific issues/results to a wide range of expert and non-expert audiences, thereby ensuring government, industry, and public stakeholders can best employ or apply the information resulting from the OSM Program's wetland monitoring, evaluation and reporting programs.

Problem Solving

Typical problems solved:

- Must develop research initiatives, new methods/techniques, and research proposals requiring analytical and/or interpretative thinking, creative thinking, and problem solving skills. Position has the authority to determine how research projects are done independently once the priorities and needs are determined and approved by the OSM Program's Oversight Committee;
- Requires scientific expertise and knowledge and understanding in order to interpret and provide consultation and advice on scientific research to various internal and external stakeholders;
- Addresses challenging problems related to the health of Alberta's wetland ecosystems and resources, as well as issues resulting from scientific uncertainty over the environmental mechanisms by which anthropogenic activities and natural drivers such as climate, affect wetland ecosystems;
- Participates in and leads diverse science programs generating new knowledge that enables creative solutions to current and anticipated problems including contamination, contaminant transport and dispersal, fluid-sediment interactions, changing wetland-groundwater-surface water interaction, industrial, agricultural, and other activities, climate change, etc.;
- Leads research programs that incorporate multiple disciplines including: groundwater, aquatic chemistry, hydrology, aquatic ecology, statistics, sediment transport and fate, (bio) geochemistry, geospatial science, modelling and limnology;
- Identifies and designs science programs delivered by teams involving academia, industry, indigenous community members, and government. The position collaborates with monitoring staff and scientific collaborators in all

phases of monitoring and research programs, from conception to delivery and reporting;

- Addresses research issues in one or more specialized areas of wetland science, with the research being conducted viewed as cutting edge with potential for the findings to set precedents for national use;
- Participates in and leads research in an environment where guidelines or scientific standards are inadequate and significant scientific or technological innovations are required;
- Interacts with media from provincial and national news organizations to communicate scientific findings and their implications;
- Responsible for wetland monitoring programs with annual budgets exceeding \$1.5M, involving numerous internal and external staff and collaborators, and focussed on diverse questions ranging from assessing status and trends in the condition of Alberta's wetland ecosystems to the potential impacts and mitigation of oil sands development activities;
- Collaborates with academic and other scientists to accelerate the creation of new knowledge and solutions thereby extending the reach of the Alberta's wetland science programs;
- Conceives, plans and conducts wetland research studies that could have considerable influence on scientific knowledge and management of Alberta's water resources.

Types of guidance available for problem solving:

The Wetland Science Team Lead (Scientific 4) understands the functionality of wetlands, and how human and natural activities influence a wetland's ecological condition. Guidance for solving problems related to the physical, chemical, and biological properties of wetland ecosystems is through extensive science expertise resident in the incumbent, and by multiple complex standard operating procedures, advice from colleagues including other technologists, scientists and external experts/collaborators, and advice and direction from senior managers. Considerable judgment is required to ensure scientific (and operational) decisions with relatively small risks are made independently, while decisions with relatively large risks are made after receiving appropriate input or direction from senior managers.

Direct or indirect impacts of decisions:

This position provides scientific leadership and expertise in wetland ecology at regional, provincial and national levels. Decisions made in this position shape wetland monitoring and research programming for OSM, the province and nationally.

The position has significant impacts on government-wide water resource management by providing scientific input to the development and implementation of surface water and related environment-related policies and regulations under the Water Act and the Environmental Protection and Enhancement Act and through the Water for Life strategy.

The position also provides scientific input to the OSM Program's groundwater, surface water, hydrometric and other monitoring with a view towards better understanding and mitigating the environmental impacts of contaminants, groundwater withdrawal, and climate change on Alberta's water quality and resources.

The position has significant external environmental, economic, and social impacts by influencing:

- Information required to draft approval processes and regulations under the Alberta Energy Regulator, including the assessment of the effectiveness of regulations;
- Information needed by industrial applicants and operations in the energy, forestry, agricultural, and municipal sectors that may affect or be affected by water resources and/or climate change;
- Information required to support government relations with indigenous communities, environmental groups, and other stakeholders with interests in water resources and climate change.

Key Relationships

Major stakeholders and purpose of interactions:

Director, Environmental Science and Field Operations

- Daily to weekly interaction to discuss strategic and operational issues related to scientific priorities and work of the section; develop and monitor performance agreements; prioritize and lead operational and strategic planning.

EPA Leadership Team (Directors, Executive Directors, Chief Scientist)

- Weekly to monthly interactions to assist senior leaders in setting organizational priorities including developing strategic research plans; provide scientific input on water related issues of importance to the Department and Government as a whole.

OSM Scientists and other OSM Branch Staff

Provision of relevant scientific information to key OSM Branch contacts including daily to weekly interactions with:

- **OSM Wetland Monitoring Evaluation and Reporting Team:** providing leadership/mentorship to junior scientists and co-leading collaborations with other team in the delivery of OSM's wetland monitoring and science; providing scientific advice/environmental information related to OSM activities
- **OSM Science Teams:** working collaboratively with other OSM scientists including air, groundwater, surface water, aquatic ecology and geospatial experts.
- **OSM Field Monitoring Team:** scientific oversight/advice on data collection and water quality and quantity field work conducted by Technologists, including providing ongoing wetland monitoring data validation.
- **Community-Based Monitoring:** supporting the braiding of Indigenous and western science and knowledge.

Scientists and other staff in EPA and other Government of Alberta Departments including permanent staff, wage staff, co-op students, and interns

- Oversee and participate in the provision of relevant water quality scientific information to key EPA contacts.
- Key Department contacts outside EPA may include the Alberta Geological Survey, the Alberta Energy Regulator, Alberta Health, and Alberta Energy.
- Weekly or monthly interactions to provide scientific leadership, consultation, and advice on wetland monitoring and research programs and to facilitate access to, and application of, scientific findings in the Government of Alberta and internationally.

Indigenous community members and their representatives

- Interactions to co-design water monitoring and research programs that are relevant to the information needs, questions and concerns of indigenous communities in the oil sands region of Alberta, consistent with the recommendations of the TAC, SIKIC and OC; programs may also directly involve community members in program delivery.

Provincial, national and international committees, task forces and boards

- Quarterly, annual, or occasional participation in multi-organizational and multi-jurisdictional teams to provide expertise, and to represent the Government of Alberta on water-related matters

Graduate students and post-doctoral researchers

- Monthly or more frequent interaction as co-supervisor, or as part of supervisory committee for PhD and MSc students; external examiner at defenses and candidacy exams.

External scientists, including academia, industry, partner monitoring organizations, Government of Canada (e.g., Environment and Climate Change Canada, Department of Fisheries and Oceans), other provincial or territorial governments, and US Agencies including Environmental Protection Agency and Geological Survey)

- Interactions to lead and collaborate, where appropriate, on integrated wetland monitoring program and research projects. Reviewing scientific literature, and draft manuscripts for journal articles and other reports; co-author publications with other organizations.

Required Education, Experience and Technical Competencies

Education Level	Focus/Major	2nd Major/Minor if applicable	Designation
Doctorate	Science	Science	Other

If other, specify:

Job-specific experience, technical competencies, certification and/or training:

The person filling this position is recognized as a national scientific expert and therefore is expected to enhance scientific expertise and capacity in the Alberta Government in relation to wetland ecology, cumulative effects assessment and synthesis. Creative thinking may involve the identification of environmental thresholds in highly complex systems, and involvement in the design of cumulative effects management programs.

The position requires a PhD in a relevant scientific discipline related to wetland ecosystems in more than one of the following areas: wetland ecology, biology, chemistry, hydrology, statistics, biogeochemistry, limnology, and water resources. The position requires a minimum of 5 years post-doctoral or equivalent work experience in the design and implementation of wetland monitoring and research programs. In addition, the Wetland Science Team Lead (Scientific 4) must have a demonstrated record of primary and collaboratively authored publications in peer-reviewed scientific journals commensurate with established peers with a similar level of experience (for example, Associate Professors at Canadian academic institutions).

The position requires extensive knowledge and experience in the following areas:

- Wetland ecology with a focus the physical, chemical, and biological properties of wetland ecosystems, the functionality of wetlands, and how human and natural activities influence a wetland's ecological condition.
- Advanced numerical analyses using statistical methods of large environmental data sets using software such as R, including data from EPA's monitoring and/or research programs and relevant programs or studies performed by others in Alberta and elsewhere.
- Application of appropriate models or other means to predict local, regional and cumulative impacts of a broad range of development and related activities at play in the oil sands region and Alberta as a whole.
- New and emerging methods related to assessing the status and trends of wetlands in Alberta's oil sands region.
- Current and emerging regional, provincial and national issues related to wetlands
- Relevant partnerships with academic and industrial research communities, relevant government and non-government agencies, etc.
- EPA's business plan, goals, strategic priorities, and accountability processes.
- Alberta's acts, regulations and policies and frameworks related to water resources.

The position requires the following skills and abilities:

- Demonstrated leadership skills, innovative and creative thinking, problem-solving, and strategic thinking skills.
- Strong data analysis, modelling and interpretation skills.
- Strong scientific writing skills, project management and program planning skills.
- Strong communication and interpersonal skills to develop and deliver understandable scientific information to key stakeholders, the scientific community, public audiences, and senior executives in government.
- Ability to build and maintain effective and productive working relationships, including with Indigenous communities, various internal and external researchers, post-secondary institutions graduate students, researchers, and specialized scientists.
- Ability to successfully manage multiple projects, meet timelines and work under pressure.
- Ability to identify, anticipate, and analyze complex issues.
- Ability to synthesize findings to identify risks, possible actions and where possible, solutions.

Behavioral Competencies

Competency	Level					Level Definition	Examples of how this level best represents the job
	A	B	C	D	E		
Systems Thinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Integrates broader context into planning: <ul style="list-style-type: none"> • Plans for how current situation is affected by broader trends • Integrates issues, political environment and risks when considering possible actions • Supports organization vision and goals through strategy • Addresses behaviours that challenge progress 	Develop and prioritize wetland monitoring and research programs aligned with OSM Program needs, and emerging priorities identified by the international scientific community. Ensuring integration between wetland monitoring and research programs as well as other environmental monitoring and research programs in OSM

<p>Creative Problem Solving</p>	<p><input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/></p>	<p>Works in open teams to share ideas and process issues:</p> <ul style="list-style-type: none"> • Uses wide range of techniques to break down problems • Allows others to think creatively and voice ideas • Brings the right people together to solve issues • Identifies new solutions for the organization 	<p>Must develop research initiatives, new methods/ techniques, and research proposals requiring analytical and/or interpretative thinking, creative thinking, and problem solving skills.</p> <p>Working with leadership, scientists and staff in OSM to ensure innovative, scientifically credible research and monitoring protocols are conceived and deployed in OSM's wetland ecosystem monitoring and science programs.</p>
<p>Drive for Results</p>	<p><input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/></p>	<p>Works to remove barriers to outcomes, sticking to principles:</p> <ul style="list-style-type: none"> • Forecasts and proactively addresses project challenges • Removes barriers to collaboration and achievement of outcomes • Upholds principles and confronts problems directly • Considers complex factors and aligns solutions with broader organization mission 	<p>Participates in and leads a diverse science-based wetland monitoring program generating new knowledge that enables creative solutions to current and anticipated problems impacting wetlands including contamination, changing water levels, impacts of industrial and agricultural activities, climate change, etc;</p> <p>Leads primary and collaborative writing of standard and non-standard reporting products communicating major observations and conclusions of long-term monitoring and focused research activities on the condition, status and trends of wetlands in Alberta's oil sands region including but not limited to peer-reviewed scientific papers.</p>

Build Collaborative Environments	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	<p>Involves a wide group of stakeholders when working on outcomes:</p> <ul style="list-style-type: none"> • Involves stakeholders and shares resources • Positively resolves conflict through coaching and facilitated discussion • Uses enthusiasm to motivate and guide others • Acknowledges and works with diverse perspectives for achieving outcomes 	<p>Identifies and designs research programs delivered by teams involving academia, industry, indigenous community members, and government.</p> <p>The position collaborates with OSM scientists, field monitoring technologists and other collaborators in all phases of monitoring and research programs, from conception to delivery and reporting.</p>
Develop Self and Others	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	<p>Encourages development and integration of emerging methods:</p> <ul style="list-style-type: none"> • Shapes group learning for team development • Employs emerging methods towards goals • Creates a shared learning environment • Works with individuals to develop personal development plans 	<p>Effectively communicating complex scientific issues/ results to a wide range of expert and non-expert audiences, thereby ensuring Indigenous communities, government, industry, and the public can best employ or apply the information resulting from OSM's wetland monitoring, evaluation and reporting programs.</p> <p>The position will lead a team of junior wetland scientists, oversee their scientific work outcomes and products.</p> <p>The position lead the team in developing a culture of scientific excellence in research and monitoring design.</p>