

Ministry

Environment and Protected Areas

Describe: Basic Job Details

Position

Position ID

Position Name

OSM Aquatic Ecology Team Lead

Requested Class

Scientific 3

Job Focus

Operations/Program

Supervisory Level

01 - Yes Supervisory

Agency (ministry) code

Cost Centre

Program Code: (enter if required)

Employee

Employee Name (or Vacant)

Vacant

Organizational Structure

Division, Branch/Unit

Resource Stewardship/ Oil Sands Monitoring Branch

Supervisor's Position ID

Supervisor's Position Name

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 Aquatic Ecology Team Lead (Scientific 3) position is accountable for safe and effective delivery of monitoring, evaluation, and reporting, with a specialization in aquatic 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). A key aspect of this role is to function in a team lead role to provide leadership and guidance to a smaller team to achieve the strategic goals of the OSM Program and Branch direction. Further, the position is responsible for leading and guiding the development and delivery of long-term monitoring programs, as well as implementation of focused studies in aquatic systems. This role ensures that the Oil Sands Monitoring Program and its partners and stakeholders, including the Government of Alberta, receive scientifically credible and relevant information needed to responsibly manage Alberta's watersheds, specifically aquatic biota, in the face of increasing pressure from industrial development, a growing population, climate change, and other pressures. This position may also contribute to water monitoring programs under the Ministry of Environment and Protected Areas.

Key outcomes of this Scientific 3 position are: generating scientific ideas and approaches to be pursued by 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 Aquatic Ecology Team Lead (Scientific 3) 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 aquatic ecosystems. The position is for a nationally

recognized scientist in this field of research, who 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 OSM Aquatic Ecology Team Lead (Scientific 3) is responsible for four (4) core results related to aquatic ecosystem monitoring, evaluation and reporting delivered by the Oil Sands Monitoring (OSM) Branch: **Design, Planning, Delivery, Evaluation and Reporting**. These responsibilities include:

1. Design: lead the review, development and continuous improvement of long-term aquatic biota monitoring programs as well as focused studies that address major issues of concern for the OSM Program and the Government of Alberta. The end result is an internationally recognized monitoring program that supports the government's business mandate, including:

- Working with OSM leadership, scientists and the larger scientific community to prioritize aquatic biota monitoring program design that is aligned with OSM needs, and emerging focused resource priorities identified by the international scientific community.
- Ensuring integration with relevant 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 aquatic biota monitoring and science programs. The Aquatic Ecology Team Lead (Scientific 3) will oversee the scientific work of a team of junior scientists and support a culture of scientific excellence in monitoring, evaluation, reporting, and innovative research relevant to the OSM Program;
- Working with OSM Branch staff to support braiding between western science and indigenous wisdom in the design and implementation of aquatic biota monitoring programs and relevant research;
- Developing and publishing conceptual models based on the latest science that summarize known and hypothesized responses of aquatic biota to environmental variation and anthropogenic stressors including climate change, land use, contaminants, and human use.

2. Planning: completes multi-year research and monitoring plans that are driven by scientific questions to assess the condition of Alberta's aquatic ecosystems. Plans also include scientific evaluations of the impacts of human activities and ecological drivers such as climate change. Activities include:

- Completing annual project plans and budgets for OSM aquatic biota monitoring and focused study 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 and maintain high-functioning teams that ensure projects are credible and relevant;
- Ensuring short-term focused studies and research projects contribute to large-scale understanding of aquatic ecosystems and resources within Alberta;
- Identifying innovative methods to observe and measure aquatic conditions by staying up to date with the latest science and frequent interaction with national and international scientists;

3. Delivering: ensures long-term aquatic biota monitoring programs and focused research studies 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 ecological 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 aquatic ecological data to support standard and non-standard reporting products, including integration with other disciplines including, not limited to groundwater, wetlands and 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 aquatic biodiversity 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, ecological data sets 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 aquatic ecology 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 aquatic ecological 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 aquatic ecosystems and resources, and resulting from scientific uncertainty over the environmental mechanisms by which anthropogenic activities and natural drivers such as climate affect aquatic ecosystems;
- Participates in and leads a diverse science program generating new knowledge that enables creative solutions to current and anticipated problems related to aquatic ecology including contamination, contaminant transport and dispersal, fluid-sediment interactions, impacts of industrial, agricultural, and other activities, climate change, etc.;
- Leads research programs that incorporate multiple disciplines including: aquatic biomonitoring, aquatic chemistry, hydrology, aquatic ecology, statistics, sediment transport and fate, (bio) geochemistry, wetland science, geospatial science, modelling and limnology;
- Identifies and designs research 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 related to aquatic ecology 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 aquatic biota 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 aquatic 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 scientific programs;
- Conceives, plans and conducts research which could have considerable influence on scientific knowledge and management of Alberta's water resources.

Types of guidance available for problem solving:

Guidance for solving scientific problems is provided by multiple complex standard operating procedures, advice from colleagues including other, scientists and external experts/collaborators, technologists 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 aquatic ecology at regional, provincial and national levels. Decisions made in this position shape important monitoring and research programs 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.

The position also provides scientific input to the OSM Program's surface water, wetlands, hydrometric and other monitoring with a view towards better understanding and mitigating environmental impacts related to oil sands development activities 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 Watershed Monitoring Evaluation and Reporting Team:** providing leadership/mentorship to junior scientists and co-leading collaborations with other teams in the delivery of OSM's aquatic biota monitoring; providing scientific advice/environmental information related to OSM activities
- **Other OSM Watershed Teams:** working collaboratively with other OSM watershed scientists including

groundwater, wetland, and geospatial experts.

- **OSM Field Monitoring Team:** scientific oversight/advice on data collection by field technologists, including providing ongoing 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 Environment and Climate Change Canada, 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 aquatic biota monitoring and research 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 aquatic biota 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 water quality, quantity and biological monitoring and research programs and 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:

Professional Biologist

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 aquatic ecology with a specialization in aquatic ecosystems, 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 aquatic ecosystems in more than one of the following areas: aquatic biomonitoring, aquatic chemistry, aquatic ecology, hydrology, statistics, sediment transport and fate, limnology and water resources. The position requires a minimum of 5 years post-doctoral or equivalent work experience in the design and implementation of aquatic biota monitoring and research programs. In addition, the OSM Aquatic Ecology Team Lead (Scientific 3) 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:

- Aquatic ecosystem science
- Advanced numerical analyses using (geo) 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 in Alberta's watersheds.
- Current and emerging provincial and national watershed priorities.
- 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 checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Takes a long-term view towards organization's objectives and how to achieve them:</p> <ul style="list-style-type: none"> • Takes holistic long-term view of challenges and opportunities • Anticipates outcomes and potential impacts, seeks stakeholder perspectives • Works towards actions and plans aligned with APS values • Works with others to identify areas for collaboration 	<p>Develop and prioritize aquatic biota monitoring and research programs aligned with OSM Program needs, and emerging identified by the international scientific community.</p> <p>Ensuring integration between aquatic biota monitoring and research programs and other environmental monitoring and research programs in OSM.</p>

<p>Creative Problem Solving</p>	<p><input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/></p>	<p>Engages the community and resources at hand to address issues:</p> <ul style="list-style-type: none"> • Engages perspective to seek root causes • Finds ways to improve complex systems • Employs resources from other areas to solve problems • Engages others and encourages debate and idea generation to solve problems while addressing risks 	<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 aquatic biota monitoring and science programs.</p>
<p>Drive for Results</p>	<p><input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/></p>	<p>Takes and delegates responsibility for outcomes:</p> <ul style="list-style-type: none"> • Uses variety of resources to monitor own performance standards • Acknowledges even indirect responsibility • Commits to what is good for Albertans even if not immediately accepted • Reaches goals consistent with APS direction 	<p>Participates in and leads a diverse aquatic ecology program generating new knowledge that enables creative solutions to current and anticipated problems 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 Alberta's aquatic biota including but not limited to peer-reviewed scientific papers.</p>

<p>Build Collaborative Environments</p>	<p><input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/></p>	<p>Collaborates across functional areas and proactively addresses conflict:</p> <ul style="list-style-type: none"> • Encourages broad thinking on projects, and works to eliminate barriers to progress • Facilitates communication and collaboration • Anticipates and reduces conflict at the outset • Credits others and gets talent recognized • Promotes collaboration and commitment 	<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>
<p>Develop Self and Others</p>	<p><input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/></p>	<p>Plans according to career goals and regular development:</p> <ul style="list-style-type: none"> • Aligns personal goals with career goals • Leverages strengths; attempts stretch goals • Provides feedback and openly discusses team performance • Values team diversity, and supports personal development 	<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 aquatic biota monitoring, evaluation and reporting programs.</p> <p>The position will lead a team of junior scientists, oversee their scientific work outcome and products.</p> <p>The position leads the team in developing a culture of scientific excellence in research and monitoring design.</p>