

Work Plan Application

Project Information	
Project Title:	Development of the design for an integrated OSM regional lake monitoring, evaluation, and reporting program - Phase 2
Lead Applicant, Organization, or Community:	Dr Fred Wrona - University of Calgary
Work Plan Identifier Number: If this is an on-going project please fill the identifier number for 24/25 fiscal by adjusting the last four digits: Example: D-1-2425 would become D-1-2425	
Project Region(s):	Oil Sands Region
Project Start Year: First year funding under the OSM program was received for this project (if applicable)	
Project End Year: Last year funding under the OSM program is requested Example: 2024	2025
Total 2024/25 Project Budget: From all sources for the 2024/25 fiscal year	\$115,000.00
Requested OSM Program Funding: For the 2024/25 fiscal year	\$115,000.00
Project Type:	Focus Study
Project Theme:	Surface Water
Anticipated Total Duration of Projects (Core and Focused Study (3 years))	Year 1
Current Year (choose one):	Focused Study Year 1 of 3
	Core Monitoring -Select One-

Contact Information

Lead Applicant/ Principal Investigator: Every work plan application requires one lead applicant. This lead is accountable for the entire work plan and all deliverables.	Dr Fred Wrona
Job Title:	SVARE Research Chair in Integrated Watershed Processes and Professor in the Department of Biological Sciences
Organization:	University of Calgary
Address:	2500 University Drive NW, Calgary AB, T2N 1N4
Phone:	403-510-0326
Email:	frederickjohn.wrona@ucalgary.ca

Project Summary

In the space below, please provide a summary of the proposed project that includes a brief overview of the project drivers and objectives, the proposed approach/methodology, project deliverables, and how the project will deliver to the OSM Program objectives. The summary should be written in plain language and **should not exceed 300 words**.

In response to the direction from the Surface Water Technical Advisory Committee (TAC) and the Science and Indigenous Knowledge Integration Committee on the 2023/24 OSM lake-related workplan submissions, a Lakes Subcommittee was constituted and initiated a workplan process in 2022/23 focusing on the development of a tiered, and adaptive regional lake monitoring plan and associated evaluation and reporting program. It is widely recognized that lakes and their associated catchments serve as important sentinels of environmental change in response to natural and anthropogenic point, and non-point, source drivers (atmospheric deposition, landscape disturbance, climate change). Because of their physical, chemical, and biological properties, lakes respond rapidly to environmental change while also integrating information about changes over long time frames through paleolimnological records. Additionally, the sustainability of lakes and their catchments in the oil sands region are important to Indigenous communities from both cultural and subsistence use perspectives. A range of lake sampling and research efforts have occurred in the AOSR over multiple decades by the Governments of Alberta and Canada (eg., RAMP, JOSMP, OSM), industry, academia, and local communities. However, a fully integrated, adaptive and prioritized MER design addressing key questions pertinent to the Oil Sands Monitoring program is lacking.

The objective of this 2nd-year focused study is to continue to conduct the necessary background information compilation and stakeholder engagement to inform the development of an integrated and adaptive regional MER lake plan that addresses key community and regulatory issues/questions associated with observed and predicted environmental changes in the status of lake ecosystems in the AOSR. Additional workshops and virtual meetings will be conducted in 2024/25 to bring together relevant Indigenous and western science expertise, and stakeholder perspectives to: 1) identify priority issues/endpoints of concern; 2) identify relevant stressor-response pathways that need to be monitored; 3) develop the selection criteria to define which regional lakes should be sampled as part of a tiered and adaptive design; 4) identify core physical, chemical and biological endpoints/indicators of change to be monitored and reported on, including indigenous endpoints of concern. A proposed 5-year MER plan for lakes in the AOSR, starting in 2025/26 will be produced for review by SIKIC and the OSC.

1.0 Merits of the Work Plan

All work plans under the OSM Program must serve the mandate of the program by determining (1) if changes in indicators are occurring in the oil sands region and (2) if the changes are caused by oil sands development activities and (3) the contribution in the context of cumulative effects. In the space below please provide information on the following:

- Describe the key drivers for the project identifying linkages to Adaptive Monitoring framework particularly as it relates to surveillance, confirmation and limits of change (as per OC approved Key Questions).
- Explain the knowledge gap as it relates to the Adaptive Monitoring that is being addressed along with the context and scope of the problem as well as the Source - Pathway - Receptor Conceptual Models .
- Describe how the project meets the mandate of the OSM Program or areas of limited knowledge is the work being designed to answer with consideration for the TAC specific Scope of Work Document (attached) and the Key Questions (attached)?
- Discuss results of previous monitoring/studies/development and what has been achieved to date. Please identify potential linkages to relevant sections of the State of Environment Report.

This project builds on the previous years approved workplan and will use the analyzed historical data to further develop and refine a proposed regional lake monitoring program. This project will explicitly tie into the OSM Adaptive Monitoring framework and will collaborate/integrate with other relevant workplans (ie. Aquatic Ecosystem Health, other surface water monitoring efforts, etc). Identifying historical normal ranges in environmental endpoints, and endpoints of concern for different interested parties, a comprehensive integrated lake monitoring plan will be developed through the 2024/25 fiscal year. The findings of this program will be well suited to be integrated into a broader OSM Adaptive Monitoring framework. Additionally, the work would help to identify areas of concern that could then be prioritized and used to inform investigation of cause (IOC) studies, where appropriate.

This work directly relates to identified gaps in the OSM program, specifically the presence of a cohesive lake monitoring program. Working with relevant partners, this work will work to develop a comprehensive plan for monitoring, evaluating, and reporting on the health of lake systems in the OSM region. The result will be a roadmap for future priority monitoring efforts for lake systems in the AOSR.

The work conducted under this program will consider response variables, including, for example: water quality/quantity and corresponding impacts on biological/ecological endpoints (e.g., fish health, components of the basal foodweb, etc). Notably, the aforementioned endpoints are used as examples only as a better understanding of existing stressor pathways and endpoints of concern will be derived from community engagement and the proposed workshops. Throughout the entire project, the team will be working with communities as closely as possible to identify and include priority endpoints and receptors to be included in historical analysis and the resulting MER plan. Where appropriate, the findings would then inform IOC studies to identify pressures, stressors, and pathways, thereby working within the source-pathway-receptor conceptual models.

A key principle related to ongoing refinement of a proposed regional lake MER plan will be based on ongoing analyses and input from regional communities, relevant stakeholders, and appropriate OSM governance structures (ie surface water TAC). Such an adaptive approach ensures that appropriate mitigation measures are being considered as are the criteria associated with measuring change and accounting for scale.

2.0 Objectives of the Work Plan

List in point form the objectives of the 2024/25 work plan below

- The objective of this 1-year focused workplan is to continue the development of a comprehensive and integrated MER lake program that addresses key community and regulatory issues/questions associated with observed and predicted environmental changes, as identified by the historical data and the conceptual model being developed by the surface water TAC.
- This project will bring together relevant Indigenous and western science expertise to identify, review, and prioritize issues to be addressed, endpoints of concern.
- The project will provide a proposed MER plan for lake systems in the AOSR and Peace region, in time for the 2025/26 workplanning process.
- The project will work closely with collaborators involved in the Community Based Monitoring (CBM) lake

monitoring efforts, including the Alberta Lake Management Society (ALMS) to ensure an integrated monitoring program design is reached.

3.0 Scope

Evaluation of Scope Criteria (Information Box Only- No action required)

Your workplan will be evaluated against the criteria below. A successful workplan would:

- Be in scope of the OSM Program (e.g., regional boundaries, specific to oil sands development, within boundaries of the Oil Sands Environmental Monitoring Program Regulation)
- consider the TAC-specific Scope of Work document and the key questions
- integrate western science with Indigenous Community-Based Monitoring)
- address the Adaptive Monitoring particularly as it relates to surveillance, confirmation and limits of change as per approved Key Questions.
- have an experimental design that addresses the Pressure/Stressor, Pathway/Exposure, Response continuum
- produce data/knowledge aligned with OSM Program requirements and is working with Service Alberta
- uses Standard Operating Procedures/ Best Management Practices/ Standard Methods including for Indigenous Community-Based Monitoring

3.1 Theme

Please select the theme(s) your monitoring work plan relates to:

- | | | | |
|--|---|---|--|
| <input type="checkbox"/> Air | <input type="checkbox"/> Groundwater | <input checked="" type="checkbox"/> Surface Water | <input type="checkbox"/> Wetlands |
| <input type="checkbox"/> Terrestrial Biology | <input type="checkbox"/> Data Management Analytics & Prediction | | <input type="checkbox"/> Cross Cutting |

3.2 Core Monitoring, Focused Study or Community Based Monitoring

Please select from the dropdown menu below if the monitoring in the work plan is “core monitoring” and/or a “focused study”. Core monitoring are long term monitoring programs that have been in operation for at least 3 years, have been previously designated by the OSM program as core, and will continue to operate into the future. Focused studies are short term projects 1-2 years that address a specific emerging issue.

Focused Study

Themes

Please select the theme from the options below. Select all that apply.

- | | | | |
|--------------------------------------|--|---|----------------------------------|
| <input type="checkbox"/> Air | <input type="checkbox"/> Groundwater | <input checked="" type="checkbox"/> Surface Water | <input type="checkbox"/> Wetland |
| <input type="checkbox"/> Terrestrial | <input type="checkbox"/> Cross-Cutting | | |

3.3.1 Surface Water Theme

Please select from the dropdown menus below the sub-theme(s) your monitoring work plan relates to and address the Key Questions:

3.3.1 Surface Water Theme:

3.3.1.1 Sub Themes

Cross Cutting

3.3.1.2 Surface Water Key Questions:

Explain how your surface water monitoring program addresses the key questions below.

Has baseline been established? Have thresholds or limits of change been identified?

No - baseline conditions have not been established. This work will help to define baseline conditions and create a procedure for evaluating baseline conditions on an ongoing basis

Are changes occurring in water quality, biological health (e.g., benthos, fish) and/or water quantity/flows relative to baseline? If yes, is there evidence that the observed change is attributable to oil sands development? (Describe source-pathway-receptor and/or conceptual models and what is the contribution in the context of cumulative effects?)

N/A

Are there unanticipated results in the data? If yes, is there need for investigation of cause studies?

To be determined using historical dataset analysis

Are changes in water quality and/or water quantity and/or biological health informing Indigenous key questions and concerns?

The

Are data produced following OSM Program requirements and provided into the OSM Program data management system?

Yes - the program is utilizing existing data that follows the OSM program data management system requirements.

Do methodologies use relevant Standard Operating Procedures/ Best Management Practices/ Standard Methods?

Yes - where applicable, existing SOPs and analytical methods will be followed.

How does the monitoring identify integration amongst projects, themes or with communities?

The project works closely with existing surface water TAC workplans PIs and the surface water TAC members.

With consideration for adaptive monitoring, where does the proposed monitoring fit on the conceptual model for the theme area relative to the conceptual model for the OSM Program?

The lake monitoring program design workplan in 2023-24 has been a contributor to the updating of the Surface Water TAC conceptual model effort. The conceptual model will be integrated into the deliverable of a 5-year MER report.

How will this work advance understanding transition towards adaptive monitoring?

This effort is helping to promote the use of adaptive monitoring by explicitly incorporating it into the resulting MER plan that will be produced

Is the work plan contributing to Programmatic State of Environment Reporting? If yes, please identify potential linkages to relevant sections of the State of Environment Report.

State of environment reporting will be built directly into the MER plan, by design. Thus it will help to ensure state of reporting is done consistently and on an ongoing basis.

4.0 Mitigation

Evaluation of Mitigation Criteria (Information Box Only- No action required)

Your workplan will be evaluated against the criteria below. A successful workplan would potentially inform:

- efficacy of an existing regulation or policy
- an EPEA approval condition
- a regional framework (i.e., LARP)
- an emerging issue

Explain how your monitoring program informs management, policy and regulatory compliance. As relevant consider adaptive monitoring and the approved Key Questions in your response.

Building on the work conducted by the Lake Working group in 2023/24, the proposed work will expand the scope of analyses, including the identification of tiers and triggers, and choice of relevant water quality, quantity, and biological/ecological indicators. The results will directly inform the development of an adaptive, regional OSM Monitoring Plan and reporting criteria to inform magnitudes of change, condition of environment reporting, expedited response and investigation of cause, where applicable. Further analyses of relevant historical data will also be valuable to policy and management decision makers, as it will allow them to understand current and historical states of these systems, including an improved delineation of historical baseline conditions against which to assess the magnitude and extent of current and future change. Historical data will be synthesized in such a way as to be easy to interpret and therefore can be easily used to inform future management decisions and recommend further research areas. It will also help provide a better understanding of stressor pathways, and if/how they might have changed over time as a result of shifts in activities and/or improvements in technology. From there, it will then help to identify potential stressor pathways of concern which then would be examined in more detail in future focused IOC studies.

5.0 Indigenous Issues

Evaluation of Indigenous Issues Criteria (Information Box Only- No action required)

Your workplan will be evaluated against the criteria below. A successful workplan would potentially:

- Investigate Indigenous communities key questions and concerns
- Includes culturally relevant receptor(s) and indicator(s)
- Include or be driven by Indigenous communities (participatory or collaborative)
- Develop capacity in Indigenous communities
- Include a Council Resolution or Letter of Support from one or more Indigenous communities
- Describe how ethics protocols and best practices regarding involvement of Indigenous peoples will be adhered to
- Provide information on how Indigenous Knowledge will be collected, interpreted, validated, and used in a way that meets community Indigenous Knowledge protocols

Explain how your monitoring activities are inclusive and respond to Indigenous key questions and concerns and inform the ability to understand impacts on concerns and inform Section 35 Rights

Lake ecosystems and the surrounding watersheds are culturally important to local Indigenous communities. They are important for spiritual, cultural (including subsistence harvesting), and recreational purposes. Understanding the historical, current, and potential future state of these systems is of paramount importance to informing management actions aimed at conservation and protection. Keen interest has been shown by local Indigenous communities in actively participating in the design and implementation of a regional lake monitoring program that incorporates environmental endpoints that are relevant to the communities. This project will include input from relevant CBM efforts occurring in the AOSR, including lake water quality and fish monitoring programs. Close collaboration with CBM efforts being led by ALMS and partner communities will be crucial to the success of this program. All efforts would be made to provide valuable training to those contributing to the program. In this first phase, we are undertaking a historical data analysis. In this second year of this workplan process, Indigenous communities and related knowledge will be vital to informing the full suite of relevant indicators to be monitored and the network design on the landscape.

Does this project include an Integrated Community Based Monitoring Component?

No

If YES, please complete the [ICBM Abbreviated Work Plan Forms](#) and submit using the link below

[ICBM WORK PLAN SUBMISSION LINK](#)

5.1 Alignment with Interim Ethical Guidelines for ICBM in the OSM Program

Are there any community specific protocols that will be followed?

The Lakes Sub-Committee and associated project team will work with Indigenous communities and, where applicable, their representatives to ensure that all community-specific protocols are adhered to. Where Indigenous Knowledge is involved, OCAP principals and considerations will be employed alongside any community-specific protocols that exist. The primary method of engagement on this workplan will be through workshops, however, there will be an effort to allow for ongoing and continuous engagement from Indigenous communities at all stages of the project based on availability and willingness. Indigenous communities and their representatives will be able to review and confirm any relevant details provided in a workshop setting by community members and/or representatives in the drafting/review stage of the final report. The project team is cognizant of the heavy demand on community members' time and will work to make involvement accessible.

Does the work plan involve methods for Indigenous participants to share information or knowledge (e.g. interview, focus group, survey/structured interview), or any other Indigenous participation? If yes, describe how risks and harms will be assessed, and the consent process that will be used.

No

Do the activities include any other collecting/sharing, interpreting, or applying Indigenous knowledge? Please describe how these activities will be conducted in alignment with the Interim Ethical Guidelines, and any community-based protocols and/or guidelines that may also apply.

No

Indicate how Indigenous communities / Indigenous knowledge holders will be involved to ensure appropriate analysis, interpretation and application of data and knowledge.

N/A

How are Indigenous communities involved in identifying or confirming the appropriateness of approach, methods, and/or indicators?

Throughout the workshop process and program design, input and feedback will be sought from all interested parties. An ongoing feedback process will also be built into the MER plan to ensure continuous review of the proposed monitoring program efforts.

How does this work plan directly benefit Indigenous communities? How does it support building capacity in Indigenous communities?

Indigenous communities will be integral partners in the program design and refinement in current and future versions of the monitoring program design.

How is the information from this work plan going to be reported back to Indigenous communities in a way that is accessible, transparent and easy to understand?

The program will include plain-language summaries of all outputs. However, by design, the proposed monitoring program will be written to inform a broad audience.

6.0 Measuring Change

Evaluation of Measuring Change Criteria (Information Box Only- No action required)

Your workplan will be evaluated against the criteria below. A successful workplan would potentially:

- assess changes in environmental conditions compared to baseline (e.g., validation of EIA predictions)
- report uncertainty in estimates and monitoring is of sufficient power to detect change due to oil sands development on reasonable temporal or spatial scales
- include indicators along the spectrum of response (e.g., individual, population, community)
- focus on areas of highest risk (where change is detected, where change is greater than expected, where development is expected to expand collection of baseline).
- measure change along a stressor gradient or a stressor/reference comparison

Explain how your monitoring identifies environmental changes and how can be assessed against a baseline condition. As relevant, consider adaptive monitoring, the TAC specific Scope of Work document and the Key Questions in your response.

Through the utilization of historical data, this project will very specifically work to identify the presence or absence of change and will contribute to defining reference conditions in lakes in the AOSR and Peace Region. Though restricted to the available historical data, a broad range of chemical and biological endpoints will be considered and included in the ongoing historical data analysis. As previously mentioned, this work supports an adaptive monitoring framework design for lake systems in the region. It also begins to form the basis for future investigation of cause questions following the adaptive monitoring framework's key questions (ie. Has water quality changed from baseline? Do contaminants of concern have effects on aquatic ecosystem health).

Through involvement of Indigenous representatives from the surface water TAC and, dependent upon availability, local communities, the range of environmental indicators will be continually refined.

7.0 Accounting for Scale

Evaluation of Accounting for Scale Criteria (Information Box Only- No action required)

Your workplan will be evaluated against the criteria below. A successful workplan would potentially be:

- appropriate to the key question and indicator of interest
- relevant to sub-regional and regional questions
- relevant to organism, population and/or community levels of biological organization
- where modelled results are validated with monitored data
- where monitoring informs on environmental processes that occur at a regional scale. e.g. Characterizing individual sources to gain a regional estimate of acid deposition and understand signal from individual contributing sources.

Explain how your monitoring tracks regional and sub-regional state of the environment, including cumulative effects. As relevant, consider adaptive monitoring, the TAC specific Scope of Work document and the Key Questions in your response.

Due to the scale and distribution of lakes in the AOSR, this project is focused on watershed (ie. Athabasca)-scale impacts. The watershed scale approach allows for both a regional and sub-regional understanding of how these systems are changing and is a logical scale given that lakes act as integrators of conditions across watersheds. This workplan is focused on identifying key regional lakes to be analyzed and will look to involve Indigenous communities in the decision-making criteria formation. Moreover, the project will build off of the conceptual model being developed and refined by the surface water TAC, and begin to improve characterization of contaminant sources (atmospheric deposition, and watershed disturbance) and will provide insights into possible adverse outcome pathways associated with contaminant loadings. The specific scale and scope of future monitoring efforts will be driven/defined by the outcomes of proposed stakeholder workshops and technical working group sessions.

8.0 Transparency

Evaluation of Transparency Criteria (Information Box Only- No action required)

Your workplan will be evaluated against the criteria below. A successful workplan would potentially include:

- a plan for dissemination of monitoring data, including appropriate timing, format, and aligns with OSM program data management plan
- demonstrated transparency in past performance
- identified an annual progress report as a deliverable
- reporting of monitoring results occurs at timing and format that is appropriate for recipient audience.

Explain how your monitoring generates data and reporting that is accessible, credible and useful. As relevant, consider adaptive monitoring, the TAC specific Scope of Work document and the Key Questions in your response.

The proposed 5-year monitoring and any associated technical reports or will be made open-access to allow for a larger reach, and each publication will be accompanied by a plain language fact sheet for dissemination, as desired. All data and analyses will be openly shared with the OSM program promptly. The resulting 5-year monitoring plan will also include direction and templates for evaluation and reporting of data.

9.0 Efficiency

Evaluation of Efficiency Criteria (Information Box Only- No action required)

Your workplan will be evaluated against the criteria below. A successful workplan would include:

- appropriately addressed a risk-informed allocation of resources
- identified the role and justification for each staff member on the proposed work plan
- identified in-kind and leveraged resources (e.g., resources and approaches are appropriately shared with other OSM projects where possible)
- established partnerships (value-added) and demonstrated examples of coordinated efficiencies (e.g., field, analytical)
- identified co-location of monitoring effort
- demonstrated monitoring activities and information collected are not duplicative
- considered sampling/measurement/methods compatibility to other data sources (e.g., AER)

Explain how your monitoring is integrated with other OSM projects and incorporates community-based participation and/or engagement in proposed monitoring activities. As relevant, consider adaptive monitoring, the TAC specific Scope of Work document and the Key Questions in your response.

The workplan will be implemented through cooperative efforts involving government, academic, and community-based, industry and private sector expertise stewarded by the lakes subcommittee within the surface water TAC. The scope of this work has been discussed with appropriate Surface Water TAC members and it has been confirmed that the proposed work is not duplicative of existing efforts and is addressing a key knowledge gap that exists in the OSM program. All analyses will be done using the best standard operating procedures available, to encourage integration and compatibility with other monitoring initiatives, including ICBM workplans. The close collaboration/partnership with the University of Calgary allows for coordinated efficiencies in the organizing of workshops, access to student support, and additional university-related support structures.

10.0 Work Plan Approach/Methods

List the Key Project Phases and Provide Bullets for Each Major Task under Each Project Phase

Systematic review of existing research/data analysis
- summarizing of historical data analysis, with a focus on lakes with greater historical data availability
Drafting of lake monitoring program evaluation criteria
- Based on discussions with key stakeholders at workshops and informed by the historical data analysis, a ranking system for lake systems will be created so that a tiered monitoring program can be developed
Feedback and refinement of lake selection criteria
- Through the planned workshops and ongoing engagement of interested parties, the selection criteria for lakes will be edited and refined.
- Ongoing check-ins and discussions will be had with the lakes subcommittee to confirm processes are being followed appropriately.

Describe how changes in environmental Condition will be assessed

This project will conform to the recommendations of SIKIC and the surface water TAC on how data should inform the identification of appropriate baseline conditions. Comparisons will include assessing conditions over time and in relation to industrial and other anthropogenic stressors. Comparisons of sites across the AOSR will be examined controlling for lake-specific variation in indicators. Indicators will be identified through the planned multi-stakeholder planning process workshops.

Are there Benchmarks Being Used to Assess Changes in Environmental Condition? If So, Please Describe, If Not, State "NONE"

This work will determine/reference conditions and help to define tiers and triggers based on historical data at the direction of SIKIC and the surface water TAC.

(e.g., objectives, tiers, triggers, limits, reference conditions, thresholds, etc.)

Provide a Brief Description of the Western Science or Community-Based Monitoring Indigenous Community-Based Monitoring Methods by Project Phase

- Data mining of historical data, monitoring efforts, environmental impact assessment reports, and community monitoring efforts on lakes in the AOSR.
- Statistical analysis to identify and quantify trends in water quality and biological parameters, and additional endpoints as identified by Indigenous communities.
- Identification of key endpoints of concern to Indigenous communities, through workshops
- Identification of key areas that require further focused work and possible community partners for this work.

List the Key Indicators Measured, If Not Applicable, State N/A

A suite of aquatic physical and chemical endpoints (ie N, P, salinity, conductivity, temperature) and biological endpoints (chlorophyll a, phytoplankton, zooplankton communities, etc). In addition, Indigenous community-relevant indicators will be identified through the workshop process.

11.0 Knowledge Translation

In the space below, please provide the following:

- Describe the plan for knowledge transfer and distribution of learnings from the project. This could include workshops, publications, best practice documentation, marketing plan, etc.
- Demonstrate that the knowledge transfer plan is appropriate for the intended end-users.

The 5-year monitoring program deliverable from this project will include a reporting framework that will include knowledge transfer and state of environment reporting components. Additionally, workshop summary reports will be compiled and shared through the OSM program office to increase communication between interested parties.

Results and interpretation from the historical data analysis components of this program will be written up in plain-language summary documents and provided to the OSM program office. Additionally, outputs from this program will be written in such a way as to allow for the implementation of a monitoring effort in subsequent fiscal years.

12.0 External Partners

List by project or project phase each component that will be delivered by an external party (including analytical laboratories) and name the party. Describe and name the associate work plan/grant/contract for these services. * state none if not required

The deliverables in this workplan will be orchestrated and managed by the University of Calgary but will be supported by members of the Lakes subcommittee of the surface water TAC. Workshops will be organized through the OSM program office but will be guided by the requirements of the lakes subcommittee and the project PI.

*To ensure complete work plan proposal submission, all grants and contracts listed in this section should also be captured in Grants & Contracts.

13.0 Data Sharing and Data Management

For 2024-25 the following approach will be taken by the OSM Program related to data sharing.

For all work plans of a **western science** nature funded under the OSM Program, data sharing is a condition of funding and must align with the principle of “**Open by Default**”. In this case, all data is to be shared with the OSM Program as directed by the OSM Program Data Management work plan.

For all work plans involving **Indigenous Knowledge** as defined below and funded under the OSM Program, data sharing is a condition of funding and the Indigenous Knowledge components of the work plan must align with the principle of “**Protected by Default**”. In this case, all data as defined as Indigenous Knowledge, are to be retained by the Indigenous community to which the Indigenous Knowledge is held.

Indigenous Knowledge is defined as:

“The knowledge held by First Nations, Inuit and Métis peoples, the Aboriginal peoples of Canada. Traditional knowledge is specific to place, usually transmitted orally, and rooted in the experience of multiple generations. It is determined by an Aboriginal community's land, environment, region, culture and language. Traditional knowledge is usually described by Aboriginal peoples as holistic, involving body, mind, feelings and spirit. Knowledge may be expressed in symbols, arts, ceremonial and everyday practices, narratives and, especially, in relationships. The word tradition is not necessarily synonymous with old. Traditional knowledge is held collectively by all members of a community, although some members may have particular responsibility for its transmission. It includes preserved knowledge created by, and received from, past generations and innovations and new knowledge transmitted to subsequent generations. In international or scholarly discourse, the terms traditional knowledge and Indigenous knowledge are sometimes used interchangeably.”

This definition was taken from the Canadian Government's Tri-council Policy Statement for Ethical Research involving Humans (Chapter 9, pg. 113) and is an interim definition specific to the Oil Sands Monitoring Program.

13.1 Has there, or will there be, a Data Sharing agreement established through this Project? *

13.2 Type of Quantitative Data Variables:

13.3 Frequency of Collection:

13.4 Estimated Data Collection Start Date:

13.5 Estimated Data Collection End Date:

13.6 Estimated Timeline For Upload Start Date:

13.7 Estimated Timeline For Upload End Date:

13.8 Will the data include traditional knowledge as defined by and provided by an Indigenous representative, Community or Organization?

Table 13.9 Please describe below the Location of Data and Data Type:

Add a Data Source by clicking on the add row on the bottom right side of table

Name of Dataset	Location of Dataset (E.g.:Path, Website, Database, etc.)	Data File Formats (E.g.: csv, txt, API, accdb, xlsx, etc.)	Security Classification
			-Select One-

14.0 2024/25 Deliverables

Add an additional deliverable by clicking on the add row on the bottom right side of table

Type of Deliverable	Delivery Date	Description
Key Engagement/Participation Meeting	Q1	Workshop/engagement meeting - Soliciting feedback on proposed endpoints and lake selection criteria for program design
Stakeholder or Community Presentation	Q1	Review of long term RAMP/ASL lake dataset status from the OSM program
Stakeholder or Community Presentation	Q2	Second workshop/engagement meeting - Soliciting feedback on proposed endpoints and lake selection criteria for program design
Other (Describe in Description Section)	Q3	Draft of Monitoring Evaluation and Reporting program design for 2025/26 workplanning process
OSM Program Annual Progress Report (required)	Q4	Annual progress reporting and submission of MER Lake plan

15.0 Project Team & Partners

In the space below please provide information on the following:

- Describe key members of the project team, including roles, responsibilities and expertise relevant to the proposed project.
- Describe the competency of this team to complete the project.
- Identify any personnel or expertise gaps for successful completion of the project relative to the OSM Program mandate and discuss how these gaps will be addressed.
- Describe the project management approach and the management structure.

University of Calgary

- Dr David Barrett - Research Associate - Department of Biological Sciences - Project management and coordination, organization, analysis, and oversight
- Dr Fred Wrona - SVARE Research Chair in Integrated Watershed Processes and Professor in the Department of Biological Sciences. - Scientific direction and project oversight

Alberta Government / OSM

- Dr Kern Lee* - Government of Alberta project management support. Historical data analysis
- Dr Yi Yi* - Historical data analysis and project support
- Dr Keegan Hicks - Biological/Ecological and interfacing with CBM lake program
- Dr Colin Cooke - Acid sensitive lakes, paleolimnology, atmospheric transport and historical program knowledge.

ECCC

- Dr Mark McMaster* - Fish health, Indigenous Indicators
- Dr Erin Ussery - Fish health ICBM team lead

Others

- Bradley Peters - Alberta Lake Management Society - Provincial lake management knowledge and CBM lake program interface
- Dr Megan Thompson* - Communities/Consultant
- Darryl Chudobiak* - Industry/Private Sector

*Denotes a member of the surface water TAC Lake Subcommittee

16.0 Project Human Resources & Financing

Section 16.1 Human Resource Estimates

Building off of the competencies listed in the previous section, please complete the table below. Add additional rows as necessary. This table must include **ALL staff involved** in the project, their role and the % of that staff's time allocated to this work plan. The AEPA calculated amount is based on an estimate of \$120,000/year for FTEs. This number cannot be changed. The OSM program recognizes that this is an estimate.

Table 16.1.1 AEPA

Add an additional AEPA Staff member by clicking on the add row below the table. The total FTE (Full Time Equivalent) is Auto Summed (in Table 16.2.1) and converted to a dollar amount.

Name (Last, First)	Role	%Time Allocated to Project

Table 16.1.2 ECCC

Add an additional ECCC Staff member by clicking on the add row below the table. The total FTE (Full Time Equivalent) is Auto Summed (in Table 16.2.2) and converted to a dollar amount.

Name (Last, First)	Role	%Time Allocated to Project

The tables below are the financial tables for Alberta Environment & Protected Areas (AEPA) and Environment & Climate Change Canada. All work plans under the OSM Program require either a government lead or a government coordinator.

Section 16.2 Financing

The OSM Program recognizes that many of these submissions are a result of joint effort and monitoring initiatives. A detailed "PROJECT FINANCE BREAKDOWN" must be provided using the Project Finance Breakdown Template provided, accessible [here](#). Please note that completion of this Project Finance Breakdown Template is mandatory and must be submitted along with each workplan.

PROJECT FINANCE BREAKDOWN TEMPLATE

Table 16.2.1 Funding Requested BY ALBERTA ENVIRONMENT & PROTECTED AREAS

Organization - Alberta Environment & Protected Areas ONLY	Total % time allocated to project for AEPA staff	Total Funding Requested from OSM
Salaries and Benefits (Calculated from Table 16.1.1 above)		
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Project-related travel		
Engagement		
Reporting		
Overhead		
Total All Grants (Calculated from Table 16.4 below)		\$115,000.00
Total All Contracts (Calculated from Table 16.5 below)		\$0.00
Sub-Total (Calculated)		\$115,000.00
Capital*		
AEPA TOTAL (Calculated)		\$115,000.00

* The Government of Alberta Financial Policies (*Policy # A600*) requires that all **capital asset** purchases comply with governmental and departmental legislation, policies, procedures, directives and guidelines. **Capital assets** (*Financial Policy # A100*, Government of Alberta, January 2014) are tangible assets that: have economic life greater than one year; are acquired, constructed, or developed for use on a continuing basis; are not held for sale in ordinary course of operations; are recorded and tracked centrally; have a cost greater than \$5,000.

Some **examples of capital asset equipment include**: laboratory equipment, appliances, boats, motors, field equipment, ATV's/snowmobiles, stationary equipment (pier/sign/weather), fire/safety equipment, pumps/tanks, heavy equipment, irrigation systems, furniture, trailers, vehicles, etc. (*Financial Policy # A100*, Government of Alberta, January 2014).

Table 16.2.2 Funding Requested BY ENVIRONMENT & CLIMATE CHANGE CANADA

Organization - Environment & Climate Change Canada ONLY	Total % time allocated to project for ECCC staff	Total Funding Requested from OSM
Salaries and Benefits FTE (Please manually provide the number in the space below)		
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Project-related travel		
Engagement		
Reporting		
Overhead		
ECCC TOTAL (Calculated)		\$0.00

* ECCC cannot request capital under the OSM program. Any capital requirements to support long-term monitoring under the OSM program should be procured by Alberta and captured in that budget table.

Table 16.3

Complete ONE table per Grant recipient.

Add a Recipient by clicking on add table below the table. The total of all Grants is Auto Summed in Table 16.2.1

GRANT RECIPIENT - ONLY: Name	Dr Fred Wrona
GRANT RECIPIENT - ONLY: Organization	University of Calgary
Category	Total Funding Requested from OSM
Salaries and Benefits FTE	\$75,000.00
Operations and Maintenance	
Consumable materials and supplies	\$5,000.00
Conferences and meetings travel	\$8,000.00
Project-related travel	
Engagement	\$4,000.00
Reporting	
Overhead	\$23,000.00
GRANT TOTAL (Calculated)	\$115,000.00

Table 16.4

Complete ONE table per Contract recipient.

Add a Recipient by clicking on add row below the table.. This section is only to be completed should the applicant intend to contract components or stages of the project out to external organizations. The total of all Contracts is Auto Summed in Table 16.2.1

CONTRACT RECIPIENT - ONLY: Name	
CONTRACT RECIPIENT - ONLY: Organization	
Category	
Salaries and Benefits	Total Funding Requested from OSM
Operations and Maintenance	
Consumable materials and supplies	
Conferences and meetings travel	
Project-related travel	
Engagement	
Reporting	
Overhead	
CONTRACT TOTAL (Calculated)	\$0.00

Table 16.5 GRAND TOTAL Project Funding Requested from OSM Program

The table below is auto calculated, please do not try to manually manipulate these contents.

Category	Total Funding Requested from OSM
Salaries and Benefits Sums totals for salaries and benefits from AEPA and ECCC ONLY	\$0.00
Operations and Maintenance	
Consumable materials and supplies Sums totals for AEPA and ECCC ONLY	\$0.00
Conferences and meetings travel Sums totals for AEPA and ECCC ONLY	\$0.00
Project-related travel Sums totals for AEPA and ECCC ONLY	\$0.00
Engagement Sums totals for AEPA and ECCC ONLY	\$0.00
Reporting Sums totals for AEPA and ECCC ONLY	\$0.00
Overhead Sums totals for AEPA and ECCC ONLY	\$0.00
Total All Grants (from table 16.2.1 above) Sums totals for AEPA Tables ONLY	\$115,000.00
Total All Contracts (from table 16.2.1 above) Sums totals for AEPA Tables ONLY	\$0.00
SUB-TOTAL (Calculated)	\$115,000.00
Capital* Sums total for AEPA	
GRAND PROJECT TOTAL	\$115,000.00

Some **examples of capital asset equipment include:** laboratory equipment, appliances, boats, motors, field equipment, ATV's/snowmobiles, stationary equipment (pier/sign/weather), fire/safety equipment, pumps/tanks, heavy equipment, irrigation systems, furniture, trailers, vehicles, etc. (*Financial Policy # A100, Government of Alberta, January 2014*).

17.0 FINANCIAL MANAGEMENT

The OSM Program reserves the right to reallocate project funding during the current fiscal year on the basis of project performance and financial overspend or underspend.

Please check this box to acknowledge you have read and understand

In the space below please describe the following:

- Discuss how potential cost overruns and cost underruns will be managed.
- If this is a continuing project from last year, identify if this project was overspent or underspent in the previous year and explain why.
- Describe what risks and/or barriers may affect this project.

Risk of potential overruns or underruns is very low. The qualified team is already in place and prepared to deliver on the workplan deliverables identified. Additionally, the lack of fieldwork in this workplan helps to limit risk exposure.

18.0 Alternate Sources of Project Financing - In-Kind Contributions

Table 18.1 In-Kind Contributions

Add an In Kind Contribution by clicking on the table and then clicking on the add row on the bottom right side of table.

Description	Source	Equivalent Amount (\$CAD)
	TOTAL	\$0.00

19.0 Consent & Declaration of Completion

Should your application be successful, The OSM Program reserves the right to publish this work plan application. Please check the box below to acknowledge you have read and understand:

I acknowledge and understand.

Lead Applicant Name

Dr Fred Wrona

Title/Organization

SVARE Research Chair in Integrated Watershed Processes - University of Calgary

Signature

Frederick J. Wrona

Digitally signed by Frederick J. Wrona
Date: 2023.11.02 23:16:25 -06'00'

Government Lead / Government Coordinator Name (if different from lead applicant)

Yi Yi

Title/Organization

Watershed Scientist

Signature

Yi.Yi

Digitally signed by Yi.Yi
Date: 2023.11.03 08:40:24 -06'00'

Please save your form and refer to the instructions page for submission link.

Governance Review & Decision Process

this phase follows submission and triggers the Governance Review

TAC Review (Date):

ICBMAC Review (Date):

SIKIC Review (Date):

OC Review (Date):

Final Recommendations:

Decision Pool:

Notes:

Post Decision: Submission Work Plan Revisions Follow-up Process

This phase will only be implemented if the final recommendation requires revisions and follow-up from governance

ICBMAC Review (Date):

SIKIC Review (Date):

OC Review (Date):

Comments:

Decision Pool:

Notes & Additional Actions for Successful Work Plan Implementation:

Signature