



# 2022-2023 OSM WORK PLAN APPLICATION

This form will be used to assess the merits of the proposed work plan and its fit with the Oil Sands Monitoring (OSM) Program mandate and strategic priorities. Applicants must complete the form in its entirety. Applicants that fail to use this form and complete all sections in the timeframe will not be considered.

OSM Work Plan Submission Deadline: The deadline for submission of proposed work plans is <b>October 5, 2021 at 4:30 PM Mountain Standard time.</b>	<b>October 5, 2021</b> 4:30 PM MST
<b>Decision Notification</b>	Mid to Late January 2022

The OSM Program is governed by the Freedom of Information and Protection of Privacy Act (FOIP) and may be required to disclose information received under this Application, or other information delivered to the OSM Program in relation to a Project, when an access request is made by anyone in the public. Applicants are encouraged to familiarize themselves with FOIP. All work plans are public documents.

## WORK PLAN COMPLETION

Please **Enable Macros** on the form when prompted.

The applicant is required to provide information in sufficient detail to allow the evaluation team to assess the work plan. Please follow the requirements/instructions carefully while at the same time being concise in substantiating the project's merits. The OSM Program is not responsible for the costs incurred by the applicant in the preparation and submission of any proposed work plan.

When working on this form, please maintain Macros compatibility by always saving your draft and your final submission as a **Microsoft Word Macro-Enabled Document**, failure to do so will result in loss of form functionality. This form was created using Microsoft word 2016 on a PC and may not have functionality on other versions of Microsoft on PC or MACS.

All work plans under the OSM Program require either a government lead or a government coordinator. This will ensure that the financial tables (for Alberta Environment and Parks & Environment and Climate Change Canada) are completed accurately for work plan consideration. **However, if an Indigenous community, environmental nongovernmental organization or any other external partner is completing a work plan proposal, they would only complete the grant or contract budget component of the **Human Resources & Financials Section** for their project. The government coordinator within Alberta Environment & Parks would be responsible for completing the remaining components of the Human Resources and Financial Section of this Work Plan Application, as they are responsible for contract and grant facilitation of successful submissions. All other sections outside of **Human Resources & Financials Section** of this work plan proposal are to be completed in full by all applicants.**

The OSM Program recognizes that majority of work planning submissions are a result of joint effort and monitoring expertise. Should the applicant wish to submit supplemental materials in addition to their application additional resources are available in the Work Planning Form and Distribution Package, accessible here: [Work Planning Form and Distribution Package](#)

Should you have any **questions** about completing this work planning form or uploading your final submission documents, please send all inquiries by email to: [OSM.Info@gov.ab.ca](mailto:OSM.Info@gov.ab.ca).



## WORK PLAN SUBMISSION

Upon completion of this application, please submit the appropriately named work plan (**Microsoft Word Macro-Enabled Document**) and all supporting documents to the link provided below. Failure to follow the naming convention provided may result in oversight of your application.

Please upload (by drag and dropping) the **WORK PLAN SUBMISSION & ALL SUPPORTING DOCUMENTS** here:

### [WORK PLAN SUBMISSION LINK \(CTRL+CLICK HERE\)](#)

Please use the following file naming convention when submitting your **WORK PLAN**:

**202223\_wkpln\_WorkPlanTitle\_ProjectLeadLastNameFirstName**

**Example:**

202223\_wkpln\_OilSandsResiduesinFishTissue\_SmithJoe

If applicable, please use the following file naming convention when submitting your **supplementary or supporting files**. Please number them according to the guidance and examples provided:

**202223\_sup##\_WorkPlanTitle\_ProjectLeadLastNameFirstName**

**Examples:**

202223\_sup01\_OilSandsResiduesinFishTissue\_SmithJoe

202223\_sup02\_OilSandsResiduesinFishTissue\_SmithJoe

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. .  
. .

202223\_sup10\_OilSandsResiduesinFishTissue\_SmithJoe

**Do not resave your work plan or documents under any other naming conventions.** If you need to make revisions and resubmit before the work planning deadline of October 5, 2021, **DO NOT** rename your submission. When resubmitting, simply resubmit with the exact naming convention so that it replaces the original submission. **DO NOT** add any additional components such as versioning or dates to the file naming convention. Please direct any questions regarding the submission or naming of submissions to [OSM.Info@gov.ab.ca](mailto:OSM.Info@gov.ab.ca).



## WORK PLAN APPLICATION

PROJECT INFORMATION	
<b>Project Title:</b>	Enhanced Monitoring of the Lower Athabasca River
<b>Lead Applicant, Organization, or Community:</b>	Alberta Environment and Parks
<b>Work Plan Identifier Number:</b> <i>If this is an on-going project please fill the identifier number for 20/21 fiscal by adjusting the last four digits: <b>Example:</b> D-1-2020 would become D-1-2022</i>	W-MD-8-2223
<b>Project Region(s):</b>	Athabasca
<b>Project Start Year:</b> <i>First year funding under the OSM program was received for this project (if applicable)</i>	2018
<b>Project End Year:</b> <i>Last year funding under the OSM program is requested <b>Example:</b> 2022</i>	2023
<b>Total 2022/23 Project Budget:</b> <i>For the 2022/23 fiscal year</i>	\$245,000.00
<b>Requested OSM Program Funding:</b> <i>For the 2022/23 fiscal year</i>	\$245,000.00
<b>Project Type:</b>	Focus Study
<b>Project Theme:</b>	Surface Water
<b>Anticipated Total Duration of Projects (Core and Focused Study (3 years))</b>	Year 4
<b>Current Year</b>	<b>Focused Study:</b> Year 3 of 3
	<b>Core Monitoring:</b> Choose an item.

CONTACT INFORMATION	
<b>Lead Applicant/ Principal Investigator:</b> <i>Every work plan application requires one lead applicant. This lead is accountable for the entire work plan and all deliverables.</i>	Keegan Hicks
<b>Job Title:</b>	Aquatic Scientist
<b>Organization:</b>	Alberta Environment and Parks
<b>Address:</b>	4938 89th Street, Edmonton, AB, T6E5K1
<b>Phone:</b>	780-422-9737
<b>Email:</b>	keegan.hicks@gov.ab.ca

## PROJECT SUMMARY

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

In the space below please provide a summary (300 words max) 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.

This baseline study enables the design and operation of Environmental Effects Monitoring that is required to inform regulatory decisions about the potential release of treated oil sands mine water (OSMW) to the Lower Athabasca River (LAR). There is currently no Environmental Effects Monitoring design for assessing the potential impacts of OSMW release on the receiving environment. Environmental Effects Monitoring is meant to be adaptive, with an increased focus on areas requiring more data, and reductions in monitoring where there is less concern.

A formal evaluation of surface water quality monitoring results in 2017 (Cooke et al. 2018) resulted in the turning off of multiple monitoring stations (M4-M6) along the LAR because of redundancy in the information collected. These sites along the LAR are part of a 60 km reach (between M3-M7) where mine waters would be discharged pending approval through the regulatory process.

Environmental Effects Monitoring baseline studies require a minimum of 3 years to establish preliminary estimates of variability for setting critical effect sizes, statistical power requirements, and site-specific study designs. Enhanced monitoring of the Lower Athabasca River was designed in 2018 by a team of scientists in collaboration with the OSPW Science Team, to evaluate local variability across multiple chemical, physical, and biological parameters prior to potential release of treated OSMW. It is fully aligned with the Surveillance tier of Environmental Effects Monitoring and includes endpoints of relevance from a classical science perspective and those of importance to Indigenous communities.

Two consecutive years of baseline data were sponsored by the OSM Program (2018/2019 and 2019/2020). The enhanced monitoring program was not approved in 2020/2021, and then received funding again in 2021/2022 to collect a third and final year of baseline data. The focus of these three funded years of the program was on study design and deployment of the program.

A full technical report for evaluation and reporting on enhanced monitoring data was not identified as a deliverable in the 2021/2022 OSMP workplan since efforts for 2021/2022 are focused on deployment. Due to the high priority of these data to inform on guidance that will be used for designing monitoring programs related to potential future discharges of treated OSMW, AEP through the Office of Chief Scientists, has established a provincially funded work plan to perform the analysis on available enhanced monitoring data and other relevant regional data on the LAR. This work will be completed by an external contractor from Fall 2021 to Spring 2022. This work includes the analysis of available environmental monitoring data collected in the first two years of the enhanced monitoring program (2018/2019, and 2019/2020).

Due to time sensitivities, this AEP-led provincial work plan is going ahead without the third year of baseline data collected under the enhanced monitoring program. The objective of the current OSMP work plan proposed for 2022/2023 is on the evaluation and reporting of all three years of data collected under the enhanced monitoring program. Similar to the provincial work plan, this OSMP work plan proposes to outsource the analysis. This

analysis will be complimentary to the provincial work plan and considers the following:

- i) This analysis will be based on all three years of baseline data to improve on our understanding of the spatial and temporal variability at the local scale. A minimum of three years of baseline data is normally required for estimates of variability for setting critical effects sizes and power analysis, which will better inform design requirements for a monitoring program for potential approved OSMW releases.
- ii) The analysis will include additional data on endpoints that were not previously available in the first two years of the enhanced monitoring program (e.g. stable isotopes and phenols in fish tissue, EROD activity, algae communities)
- iii) The regional analysis between M3-M7 through core OSMP/provincial programs can be further updated with previously missing or unavailable data which can be used to refine limits of change
- iv) The AEP-led provincial work plan is expected to identify data gaps and recommend additional analysis which could now be addressed with the third year of enhanced monitoring data

## 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 the EEM 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 EEM framework 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
- Discuss results of previous monitoring/studies/development and what has been achieved to date.

The key driver for this program is the potential release of treated Oil Sands Mine Water (OSMW) into the Lower Athabasca River (LAR). Enhanced monitoring was designed to evaluate local variability across multiple aquatic endpoints in the LAR where potential releases may occur if approved. In addition to collecting baseline data, this program will inform on an EEM study design, including appropriate selection of endpoints, sample sizes, critical effect sizes, and appropriate spatial and temporal design elements as it relates to potential discharges to the LAR. This program will also contribute data that can be used together with regional core monitoring data to establish limits of change in this reach of the LAR.

This program is also addressing gaps as it relates to the core OSM programs for surface water, benthic invertebrates, and fish. Endpoints selected for this program include those in core monitoring, as well as additional endpoints that were considered important in terms of OSMW release and those of importance to Indigenous communities. These additional endpoints will be evaluated and assessed to determine if they should be included in core monitoring. A second gap being addressed is related to the scale of the study. The enhanced monitoring study design is a fine scale gradient design that is assessing changes in indicators at smaller spatial scales compared to changes being assessed at larger spatial scales (regional) established in core monitoring programs.

This study is also addressing potential gaps in the OSM program conceptual models. The release of treated OSMW, if approved, would add an additional pressure/stressor to the current system. This will trigger additional exposure and response pathways. This program will help identify these knowledge gaps in the conceptual model.

This program is now on its third year of funding. Year one (2018/2019) focused on study design and deployment, while year two (2019/2020) and three (2021/2022) has primarily been focused on field deployment. Additional information on the program, including details of the study design and a status update of the program by year, are available in three published reports released by the Office of the Chief Scientist on the Alberta Government open portal:

1. Hicks, K., and Scrimgeour, G. 2019. A study design for enhanced environmental monitoring of the Lower Athabasca River. Government of Alberta, Ministry of Environment and Parks. ISBN 978-1-4601-4536-4. [open.alberta.ca/publications/9781460145364](https://open.alberta.ca/publications/9781460145364).
2. Hicks, K., and Scrimgeour, G. 2019. Summary of enhanced monitoring of the Lower Athabasca River, 2018. Government of Alberta, Ministry of Environment and Parks. ISBN 978-1-4601-4537-1. [open.alberta.ca/publications/9781460145371](https://open.alberta.ca/publications/9781460145371)
3. Hicks, K., and Scrimgeour, G. 2020. Synthesis report of the enhanced monitoring program on the Lower Athabasca River, 2019-2020. Government of Alberta, Ministry of Environment and Parks. ISBN978-1-4601-4838-9. [open.alberta.ca/publications/9781460148389](https://open.alberta.ca/publications/9781460148389).

Enhanced monitoring has also contributed to the state of environment reportings as a research spotlight:

Hicks, K., Scimgeour, G. 2021. Chapter 2.8 Research Spotlight: Enhanced Monitoring of the Lower Athabasca River. State of the Environment Report produced by the Oil Sands Monitoring Program. In preparation.



Year three of the program (2021/2022) will produce another report describing the status of the enhanced monitoring program and what was accomplished in 2021/2022.

## 2.0 Objectives of the Work Plan

List in point form the Objectives of the 2022/23 work plan below

The objective of this work plan is to complete the evaluation and reporting for the three years of baseline data collected under the enhanced monitoring program (2018/2019, 2019/2020, and 2021/2022). The main objective of the program was to characterize the spatial and temporal variability across endpoints at the local scale. This will be used to inform guidance that will be developed for designing monitoring programs related to potential discharges approved in the future.

### 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)
- integrate western science with Indigenous Community-Based Monitoring
- addresses the EEM framework 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 Sub Theme

Please select from the dropdown menu below the theme(s) your monitoring work plan relates to:

Surface Water

### 3.2 Core Monitoring or Focused study

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. For the purposes of 2022/23 work planning all Community Based Monitoring Projects are Focused Studies.

Focused Study (includes Community-Based Monitoring)



### 3.3 Sub Theme Key Questions

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

##### 3.4.1.2 Surface Water Key Questions

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

1. Are changes occurring in water quality, biological health (e.g., benthos, fish) and/or water quantity/flows, to what degree are changes attributable to oil sands activities, and what is the contribution in the context of cumulative effects?

The enhanced monitoring program was developed to establish baseline conditions and to assess changes to multiple aquatic theme area indicators (e.g. water chemistry, sediment chemistry, algae, benthic invertebrates, and fish) at the local scale. The location of sites on the Lower Athabasca River is in a reach where multiple future releases of treated OSMW are planned should they be allowed to release. Compared to regional monitoring, the study design will assess changes at a higher spatial resolution. Three years of data have now been collected, and changes at these smaller spatial scales can be evaluated, which will help inform on an EEM study design for potential future OSMW releases. This will include power analysis, which will be a key outcome of the study to inform on the number of monitoring sites required to detect change at the local scale. Changes at smaller spatial scales will also be evaluated against changes observed in regional core monitoring programs.

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

The enhanced monitoring program was designed by the Oil Sands Process Water Science Team (OSPW ST) which included Indigenous community representatives. Their inclusion during the study design phase was to ensure Indigenous concerns were addressed and that any indicators of importance to local Indigenous communities were included in the study. The OSPW ST has since been dissolved (Jan 2018 – July 2020) and a new Oil Sands Mine Water Science Team has been formed (August 2020) which has expanded its scope and includes additional Indigenous community representatives. This team continues to be involved and has and will oversee all products that come out of this project including the data evaluation and reporting. This overall process has ensured that key questions and concerns from local Indigenous communities are addressed.

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

As per the conditions and rules following data collected for OSM programs, these data have and will be released to the OSM data management system. Data collected to date have been made available on the portal and OSM data catalogue.

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

This program follows standard operating procedures (SOPs) that are consistent with core OSM programs, including those from surface water quality, benthic invertebrates, and fish. This is necessary to ensure comparability of ongoing and historical data collections. The following SOPs were used in the program:

- Environment Canada. 1998. Pulp and paper technical guidance for aquatic environmental effects monitoring: National EEM Office, Environment Canada, Ottawa, Ontario.

- Luider, E., Halliwell, D., Bura, R.B., Hryn, D., Culp, J.M. 2018. Benthic macroinvertebrate biomonitoring program: Mainstem Athabasca River. Environment and Climate Change Canada. Saskatoon, Saskatchewan.
- Regional Aquatic Monitoring Program (RAMP). 2016. <http://www.ramp-alberta.org/RAMP.aspx>

ECCC also published in 2018 the following SOPs that were followed in this program:

- SOP for the field collection of water quality samples
- SOP for auto-monitoring (PISCES) platform and internally logging unattended samples
- SOP for the deployment of anchoring arrays for water quality sampling devices in large rivers.
- SOP for field water quality sampling using semi-permeable membrane devices (SPMDs)
- SOP for benthic invertebrate monitoring in wadeable streams of the Athabasca Oil Sands Region; additional procedures to the national CABIN protocols.

Enhanced monitoring also ensures that analytical methods used in commercial laboratories are consistent with what is used in core monitoring programs to ensure data comparability. This includes appropriate QAQC procedures, analytical instrumentation, method detection limits.

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

The enhanced monitoring study design considered monitoring activities from core aquatic monitoring programs to avoid duplications, to ensure consistency in methodology and data collection, and to coordinate sampling efforts. This included core monitoring work plans for surface water quality, benthic invertebrates, and fish. Existing core monitoring programs were integrated with the enhanced monitoring design including ongoing (or discontinued) sites and existing endpoints. Enhanced monitoring also utilizes available historical data and new data being generated on baseline conditions in the reach of interest between M3 and M7. These data, along with enhanced monitoring data will be used to establish limits of change.

6.7.6. Where does the monitoring fit on the conceptual model within the EEM framework for the theme area and relative to the conceptual model for the OSM Program theme area? How will this work advance understanding transition towards of the conceptual model EEM framework?

This program is cross-cutting within the surface water theme, fitting in across stressor-response pathways across surface water quality, sediment quality, and multiple trophic levels (algae, benthos, fish) and levels of biological organization (individuals, populations, communities). This program is also addressing potential gaps in the conceptual model, such as OSMW release, which will trigger additional stressor-response pathways. In the event of OSMW release, this program will help address/identify/modify the current conceptual models as it relates to EEM and adaptive monitoring.

7. Is the work plan contributing to Programmatic State of Environment Reporting?

Enhanced Monitoring has contributed to the 2020-2021 SoE reporting as a research spotlight in the aquatic theme chapter. This program will continue to contribute to SoE.



**3.3.2 Groundwater Theme**

**3.3.2.1 Sub Themes:**

Choose an item.

**3.3.2.2 Groundwater Key Questions**

Explain how your groundwater monitoring program addresses the key questions below.

1. Are changes occurring in groundwater quality and/or quantity, to what degree are changes attributable to oil sands activities, are changes affecting other ecosystems, and what is the contribution in the context of cumulative effects?

Click or tap here to enter text.

2. Are changes in groundwater quality and/or quantity informing Indigenous key questions and concerns Indigenous concerns and health?

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

6. Where does the monitoring fit within the EEM framework and relative to the theme area? How will this work advance transition towards the EEM framework?

Click or tap here to enter text.

7. Where does the monitoring fit on the conceptual model for the theme area and relative to the conceptual model for the OSM Program? How will this work advance understanding of the conceptual model?

Click or tap here to enter text.

8. Is the work plan contributing to Programmatic State of Environment Reporting?

Click or tap here to enter text.

### 3.3.3 Wetlands Theme

#### 3.3.3.1 Sub Themes:

Choose an item.

#### 3.3.3.2 Wetland - Key Questions

Explain how your wetland monitoring program addresses the key questions below.

1. Are changes occurring in wetlands due to contaminants and hydrological processes, to what degree are changes attributable to oil sands activities, and what is the contribution in the context of cumulative effects?

Click or tap here to enter text.

2. Are changes in wetlands informing Indigenous key questions and concerns?

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

6. Where does the monitoring fit within the EEM framework and relative to the theme area? How will this work advance transition towards the EEM framework?

Click or tap here to enter text.

7. Where does the monitoring fit on the conceptual model for the theme area and relative to the conceptual model for the OSM Program? How will this work advance understanding of the conceptual model?

Click or tap here to enter text.

8. Is the work plan contributing to Programmatic State of Environment Reporting?

Click or tap here to enter text.



**3.3.4 Air Theme**

**3.3.4.1 Sub Themes:**

Choose an item.

**3.3.4.2 Air & Deposition - Key Questions**

Explain how your air & deposition monitoring program addresses the key questions below.

1. Are changes occurring in air quality, to what degree are changes attributable to oil sands emissions, and what is the contribution in the context of cumulative effects?

Click or tap here to enter text.

2. Are changes informing Indigenous key questions and concerns?

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

6. Where does the monitoring fit within the EEM framework and relative to the theme area? How will this work advance transition towards the EEM framework?

Click or tap here to enter text.

7. Where does the monitoring fit on the conceptual model for the theme area and relative to the conceptual model for the OSM Program? How will this work advance understanding of the conceptual model?

Click or tap here to enter text.

8. Is the work plan contributing to Programmatic State of Environment Reporting? (Answer Box)

Click or tap here to enter text.



**3.3.5 Terrestrial Biology Theme**

**3.3.5.1 Sub Themes:**

Choose an item.

**3.3.5.2 Terrestrial Biology - Key Questions**

Explain how your terrestrial biological monitoring program addresses the key questions below.

1. Are changes occurring in terrestrial ecosystems due to contaminants and landscape alteration, to what degree are changes attributable to oil sands activities, and what is the contribution in the context of cumulative effects?

Click or tap here to enter text.

2. Are changes in terrestrial ecosystems informing Indigenous key questions and concerns?

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

6. Where does the monitoring fit within the EEM framework and relative to the theme area? How will this work advance transition towards the EEM framework?

Click or tap here to enter text.

7. Where does the monitoring fit on the conceptual model for the theme area and relative to the conceptual model for the OSM Program? How will this work advance understanding of the conceptual model?

Click or tap here to enter text.

8. Is the work plan contributing to Programmatic State of Environment Reporting?

Click or tap here to enter text.



**3.3.6 Cross-Cutting Across Theme Areas**

**3.3.6.1 Sub Themes:**

Choose an item.

If "Other" was selected from the drop down list above please describe below:

Click or tap here to enter text.

**3.3.6.2 Cross-Cutting - Key Questions**

Explain how your cross-cutting monitoring program addresses the key questions below.

1. Is data produced following OSM Program requirements and provided into the OSM Program data management system?

Click or tap here to enter text.

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

Click or tap here to enter text.

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

Click or tap here to enter text.

4. Where does the monitoring fit within the EEM framework and relative to the theme area? How will this work advance transition towards the EEM framework?

Click or tap here to enter text.

5. Where does the monitoring fit on the conceptual model for the theme area and relative to the conceptual model for the OSM Program? How will this work advance understanding of the conceptual model?

Click or tap here to enter text.

6. Is the work plan contributing to Programmatic State of Environment Reporting?

Click or tap here to enter text.

## 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 give consideration for the EEM framework and the approved Key Questions.

The enhanced monitoring program can contribute to the Lower Athabasca Regional Plan (LARP) and inform on the environmental management framework for surface water quality and biodiversity for the Lower Athabasca Region. These data can enhance their regular reporting and be used to evaluate against or help in the development of limits or triggers. Conversations are ongoing with the AEP planning branch to advance how these data and other OSM generated data in the Lower Athabasca Region can contribute to the LARP.

The enhanced monitoring workplan is also addressing the emerging issue of potential releases of treated OSMW to the Lower Athabasca River. Now that three years of baseline data are collected, the analysis of data and evaluation of the study design will help inform on an EEM design that could be used for implementation in a regulatory framework, should releases be approved. Regulations that would enable potential releases is expected in the near future (2023-2025).



## 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

Engagement with Indigenous communities has been ongoing since the design phase of this program (2018/2019) and continues to evolve. Three areas of Indigenous community engagement have been identified and have been delivered in this program including the following:

- 1) Indigenous community representatives are involved in the design of the program:

Engagement with Indigenous community representatives began in the first year of the program during the study design phase, to ensure the program incorporated indicators of interest to Indigenous communities. Engagement was through the Oil Sands Process Affected Water (OSPW) Science Team that was created by the Chief Scientist of Alberta Environment and Parks. Indigenous community representatives of the new Oil Sands Mine Water Science Team continue to be actively engaged with the program and reviewing of the data and reports generated through the program.

- 2) Support community-based monitoring programs in the Peace-Athabasca-Delta:

Collaboration and engagement with the Mikisew Cree First Nation and the Athabasca Chipewyan First Nation began in 2018/2019 and continued into 2019/2020 in the Peace-Athabasca-Delta (PAD), during their annual fall Whitefish Camp. The purpose of the camp was to build relationships between Indigenous communities and scientists. The camp provided a platform to exchange information between Indigenous knowledge holders and scientists, with the goal of developing more robust monitoring programs in the PAD. The enhanced monitoring work plan provided support in i) engaging with Mikisew Cree First Nation community members on endpoints of relevance, ii) supporting the development of sampling methods, and ii) supporting the coordination, analysis, and interpretation of data.



3) Participation by Indigenous community members in data collection:

In 2019/2020, the enhanced monitoring work plan had community members participate in sample collection. Having participants out sampling will i) improve trust in data collected by GoA, ii) address questions/concerns by the community members and build relationships, and iii) provide training and share methods and protocols used in OSM. This will support both economic and environmental monitoring capacity building within these communities which will help them lead their own CBM programs.

Does this project include an Integrated Community Based Monitoring Component?

No

## 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 can be assessed against a baseline condition. As relevant give consideration for the EEM framework and the approved Key Questions.

-The focus of the enhanced monitoring workplan is to quantify spatial and temporal patterns in water and sediment physicochemistry, the structure of biological communities (across multiple levels of biological organization) and the burdens of a suite of contaminants and metals in select biological communities. Given the inherent variability, the required sampling intensities (sample sizes, temporal and spatial scale) will be evaluated to help inform on a study design that would enable impacts to be detected should they occur.

- The design of the program and location of sites is in an area where multiple discharges of treated OSMW may be released if approved. This program has enhanced the existing monitoring (while integrating with core programs) in this key region.

- This program will provide a baseline that would be used to evaluate responses to potential OSMW releases.

- The existing regional and enhanced data will be used to improve monitoring and forecast triggers that could be used in decision-making related to detecting potential responses to effluent discharges, should they occur.

## 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 give consideration for the EEM framework and the approved Key Questions.

One of the key questions addressed in enhance monitoring program is related to scale. We are examining changes across multiple physical and chemical parameters, and linking this to multiple levels of biological organization (individual, population, community) and trophic levels. While this study is very local (small scale) addressing one potential future release site, it will inform on the core monitoring occurring at the regional/sub-regional scale.

## 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 give consideration for the EEM framework and the approved Key Questions.

All data produced from the enhanced monitoring program has been and will be released to the relevant data management portal, so that it is accessible to the public. This will be raw, un-synthesized data, consistent with data formats released from core monitoring programs. Data collected in previous years (2018/2019; 2019/2020) is available and waiting release through the new AEP OSM data catalogue. Enhanced monitoring is participating in the soft release phase of the AEP OSM data catalogue which is planned for fall 2021. Enhanced monitoring has also made all of its water quality data (discrete and continuous) available through the Kisters online public portal: (<https://aws.kisters.net/OSM/applications/public.html?publicuser=Guest#waterdata/stationoverview>).

The Enhanced monitoring program has maintained transparency by publishing annual activity reports, a report on the study design, and brief plain-language summaries through AEP's Office of the Chief Scientist:

- 1) Hicks, K., and Scrimgeour, G. 2019. A study design for enhanced environmental monitoring of the Lower Athabasca River. Government of Alberta, Ministry of Environment and Parks. ISBN 978-1-4601-4536-4. Available at: <https://open.alberta.ca/publications/9781460145371>.
- 2) Hicks, K., and Scrimgeour, G. 2019. Summary of enhanced monitoring of the Lower Athabasca River, 2018. Government of Alberta, Ministry of Environment and Parks. ISBN 978-1-4601-4537-1. Available at: <https://open.alberta.ca/puclications/9781460145371>.
- 3) Hicks, K., and Scrimgeour, G. 2020. Synthesis report of the enhanced monitoring program on the Lower Athabasca River 2019-2020. Government of Alberta, Ministry of Environment and Parks. ISBN 978-1-4601-4838-9. Available at: <https://open.alberta.ca/publications/9781460148380>.

The enhanced monitoring program has and will continue contributing to OSM annual reporting and state of the environment reporting. This includes an activity report for the status of data collected in 2021/2022.

This work plan proposed for 2022/2023 will produce a full technical report that will be made available to the OSM program.

## 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 give consideration for the EEM framework and the approved Key Questions.

In previous years, deployment of monitoring activities were fully integrated with core monitoring programs to avoid redundancies and duplication, and to ensure consistency in methodologies (for data comparability). Enhanced monitoring ensured that the temporal sampling design aligned with core programs including surface water quality, benthic invertebrates, and fish, to allow for the integration of data between programs. Local Indigenous community members were also engaged prior to monitoring activities. No monitoring activities are proposed for this work plans for 2022/2023.

## 10.0 Work Plan Approach/Methods

### 10.1 List the Key Project Phases and Provide Bullets for Each Major Task under Each Project Phase \*

**Phase 1: Enhanced Monitoring Data Management**

- Compile and synthesize all remaining data from 2021/2022 for storage on GOA internal databases
- Format and disseminate data to the OSM data catalogue.

**Phase 2: Enhanced Monitoring Evaluation and Reporting**

- Establish a contractor through an open bid process (Q1, 2022/2023; or earlier pending work plan approvals)
- Deploy contract (Q1, 2022/2023)
- Receive first draft reports (end of Q2, 2022/2023)
- Complete internal and external stakeholder review of draft report (Q3, 2022/2023)
- Finalize draft report (Q4, 2022/2023)

### 10.2 Describe how changes in environmental Condition will be assessed \*

The focus of the proposed study is to quantify spatial and temporal variability in water chemistry and sediment chemistry, the structure of biological communities, and the burdens of a suite of contaminants and metals in select organisms (fish and invertebrates). One of the outputs of the program will be a power analysis, to determine the number of sites, sample sizes, and temporal sampling scale that would be required to detect a change, should an impact be detected from potential future releases of OSMW. This will inform on guidance for monitoring study designs (EEM) for OSMW releases.

This study will also contribute to current baseline on the LAR where potential releases would be in the future. Should the release of treated OSPW be approved, this baseline data would be used in a before-after-control-impact (BACI) design to assess impacts, should they occur.

### 10.3 Are There Benchmarks Being Used to Assess Changes in Environmental Condition? If So, Please Describe, If Not, State "NONE" \*

Benchmarks, including those established by the federal Government of Canada (CCME) and provincial Government of Alberta for surface water quality, sediment quality, and tissue residues, will be evaluated against baseline data. Fish health, fish communities, and benthic invertebrate communities will follow benchmarks proposed in the EEM for pulp and paper and metal mines for detecting change. The existing regional data together with the enhanced monitoring data will be used to develop monitoring and forecast triggers that could be used in decision-making for releases within the reach of development.

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

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

No monitoring is proposed for the enhanced monitoring 2022/2023 work plan, however, the following was followed in previous years:

- Surface water quality is collected following standardized protocols established by ECCC and include methods developed for large rivers.
- Benthic invertebrate communities are collected following the federally established standardized CABIN protocol, with some modifications for use in large rivers and depositional habitats.
- Fish health collections follow protocols established in the EEM guidance documents for pulp and paper and metal mines.

Methods utilized in enhanced monitoring are consistent with methods established in core monitoring programs.

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

The enhanced monitoring program has adopted indicators from core OSM monitoring programs (surface water, benthic invertebrate, and fish health programs).

In addition to indicators identified in core monitoring programs, those considered important in describing baseline conditions in terms of potential OSMW release were added. These indicators will be evaluated further and assessed if they should be included in core monitoring programs. These add-on indicators are identified below with an asterisk (\*).

- Continuous water monitoring variables include water temperature, dissolved oxygen, pH, conductivity, and turbidity.
- Discrete water quality grab samples: anions and base cations, multiple nutrient fractions, total and dissolved trace metals, Hg/MeHg, polycyclic aromatic compounds (PACs), naphthenic acid speciation (NAs)\*, total phenols\*, and petroleum hydrocarbons (BTEX, F1-F4)\*.
- Semi-permeable membrane devices (SPMDs) for passive sampling of dissolved PACs
- Benthic algae community composition
- Benthic macroinvertebrate community composition
- Fish community composition
- Sediment quality: Total organic carbon, total organic nitrogen, loss on ignition\*, total trace metals, PACs, NAs\*, total phenols\*, Hg/MeHg, particle size distribution
- Trace metals and Hg/MeHg in invertebrate tissues\*
- Trace metals, Hg, MeHg\*, PACs in small bodied fish (trout-perch)
- Trace metals, Hg, MeHg\*, PACs and phenols\* in large-bodied fish (white sucker, walleye)
- Stable isotope ratios (D13C and D15N) in invertebrates, and small/large-bodied fish\*
- Small-bodied fish health: Trout perch – condition factor, liversomatic index, gonadosomatic index, EROD activity, age
- Large-bodied fish health: White sucker - condition factor, liversomatic index, gonadosomatic index, EROD activity, age

Additional endpoints identified that are not included in core programs and that are not funded by enhanced monitoring:

- Water cytotoxicity assay (human hepatocarcinoma cell line)\*



## 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.

All technical documents and reports produced for this program have been published through the Office of the Chief Scientist. These are made publicly available and are disseminated to all relevant stakeholders. Results from this program will continue to be shared at stakeholder meetings, conferences, and provided in publicly available reports and publications.

## 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

Phase 1: Data management (none)  
Phase 2: Evaluation and Report  
- One contract will be established through an open bid process

\*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 2022-23 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.*

**Data Sharing and Data Management** *Continued*

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

NO

13.2 Type of Quantitative Data Variables:

Choose an item

13.3 Frequency of Collection:

Choose an item.

13.4 Estimated Data Collection Start Date:

NA

13.5 Estimated Data Collection End Date:

NA

13.6 Estimated Timeline For Upload Start Date:

NA

13.7 Estimated Timeline For Upload End Date:

NA

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

NO

**TABLE 13.9 Please describe below the Location of Data and Data Type:**

*Add a Data Source by clicking on the table and then clicking on the blue "+" symbol 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, accddb, xlsx, etc.)	Security Classification
Surface Water Quality <i>(discrete and continuous)</i>	Kirster web portal: <a href="https://aws.kisters.net/OSM/applications/public.html?publicuser=Guest#waterdata/stationoverview">https://aws.kisters.net/OSM/applications/public.html?publicuser=Guest#waterdata/stationoverview</a>	Click or tap here to enter text.	Open by Default
Contaminant loadings in fish and invertebrate tissue	OSM data catalogue	Click or tap here to enter text.	Open by Default



Epilithic algae	OSM data catalogue	Click or tap here to enter text.	Open by Default
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Benthic invertebrate communities	OSM data catalogue	Click or tap here to enter text.	Open by Default
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Sediment quality	OSM data catalogue	Click or tap here to enter text.	Open by Default
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Fish Communities	OSM data catalogue	Click or tap here to enter text.	Open by Default
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Fish health	OSM data catalogue	Click or tap here to enter text.	Open by Default
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## 14.0 2022/23 Deliverables

Add an additional deliverable by clicking on the table and then clicking on the blue "+" symbol on the bottom right side of table.

Type of Deliverable	Delivery Date	Description
Technical Report	Q4	Full technical report on the three years of baseline data
OSM Program Annual Progress Report (required)	Q4	Provide requirements for OSM annual progress report

## 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.

Dr. Keegan Hicks has been the lead of the program since it began in 2018, including delivery of all historical elements. As an aquatic scientist, Keegan will continue to lead and finalize the remaining evaluation and reporting elements of the program, as proposed in this work plan. Expertise, through in kind support will include AEP invertebrate biologists Dr. Justin Hanisch and Ms. Kristin Hynes, who will provide valuable support in overseeing some of the data evaluation and reporting. Scientific experts from the University of Calgary (Kelly Munckittrick, CAIP Research Chair in Ecosystem Health Assessment) and Environment and Climate Change Canada (Mark McMaster, Fish Health Scientist) will also be collaborative partners and oversee some of the data analysis, evaluation, and reporting elements of the program.

## 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 AEP 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 AEP

Add an additional AEP Staff member by clicking on the table and then clicking on the blue "+" symbol on the bottom right side of 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
Hicks, Keegan	Aquatic Scientist – Principal Investigator	50%
Hynes, Kristin	Invertebrate Biologist, evaluation and reporting support	0%
Hanisch, Justin	Invertebrate Biologist, evaluation and reporting support	0%

#### Table 16.1.2 ECCC

Add an additional ECCC Staff member by clicking on the table and then clicking on the blue "+" symbol on the bottom right side of table. The total FTE (Full Time Equivalent) is Auto Summed in Table 16.2.2

Name (Last, First)	Role	% Time Allocated to Project
McMaster, Mark	Fish Health Scientist	0%

The tables below are the financial tables for Alberta Environment & Parks (AEP) 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 (ctrl + click the link below). Please note that completion of this Project Finance Breakdown Template is mandatory and must be submitted along with each workplan.

## [PROJECT FINANCE BREAKDOWN TEMPLATE \(CTRL+CLICK HERE\)](#)

**Table 16.2.1 Funding Requested BY ALBERTA ENVIRONMENT & PARKS**

Organization – Alberta Environment & Parks ONLY	Total % time allocated to project for AEP staff	Total Funding Requested from OSM
<b>Salaries and Benefits</b> <i>(Calculated from Table 16.1.1 above)</i>	<b>50.00%</b>	<b>\$60,000.00</b>
<b>Operations and Maintenance</b>		
Consumable materials and supplies		\$0.00
Conferences and meetings travel		\$3,000.00
Project-related travel		\$0.00
Engagement		\$0.00
Reporting		\$2,000.00
Overhead		\$0.00
<b>Total All Grants</b> <i>(Calculated from Table 16.4 below)</i>		<b>\$0.00</b>
<b>Total All Contracts</b> <i>(Calculated from Table 16.5 below)</i>		<b>\$180,000.00</b>
<b>Sub- TOTAL</b> <i>(Calculated)</i>		<b>\$245,000.00</b>
Capital*		\$0.00
<b>AEP TOTAL</b> <i>(Calculated)</i>		<b>\$245,000.00</b>

\* 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
<b>Salaries and Benefits FTE</b> <i>(Please manually provide the number in the space below)</i>		
Salaries and Benefits		\$0.00
<b>Operations and Maintenance</b>		
Consumable materials and supplies		\$0.00
Conferences and meetings travel		\$0.00
Project-related travel		\$0.00
Engagement		\$0.00
Reporting		\$0.00
Overhead		\$0.00
<b>ECCC TOTAL</b> <i>(Calculated)</i>		<b>\$0.00</b>

\* 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 the table and then clicking on the blue "+" symbol on the bottom right side of table. The total of all Grants is Auto Summed in Table 16.2.1*

GRANT RECIPIENT - ONLY: Name	Click or tap here to enter text.
GRANT RECIPIENT - ONLY: Organization	Click or tap here to enter text.
<b>Category</b>	<b>Total Funding Requested from OSM</b>
Salaries and Benefits	\$0.00
<b>Operations and Maintenance</b>	
Consumable materials and supplies	\$0.00
Conferences and meetings travel	\$0.00
Project-related travel	\$0.00
Engagement	\$0.00
Reporting	\$0.00
Overhead	\$0.00
<b>GRANT TOTAL</b> <i>(Calculated)</i>	<b>\$0.00</b>

**Table 16.4**

**Complete ONE table per Contract recipient.**

*Add a Recipient by clicking on the table and then clicking on the blue "+" symbol on the bottom right side of 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	Click or tap here to enter text.
CONTRACT RECIPIENT - ONLY: Organization	TBD – contractor for data evaluation and reporting
<b>Category</b>	<b>Total Funding Requested from OSM</b>
Salaries and Benefits	\$180,000.00
<b>Operations and Maintenance</b>	
Consumable materials and supplies	\$0.00
Conferences and meetings travel	\$0.00
Project-related travel	\$0.00
Engagement	\$0.00
Reporting	\$0.00
Overhead	\$0.00
CONTRACT TOTAL <i>(Calculated)</i>	<b>\$180,000.00</b>

**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
<b>Salaries and Benefits</b> <i>Sums totals for salaries and benefits from AEP and ECCC ONLY</i>	\$60,000.00
<b>Operations and Maintenance</b>	
<b>Consumable materials and supplies</b> <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
<b>Conferences and meetings travel</b> <i>Sums totals for AEP and ECCC ONLY</i>	\$3,000.00
<b>Project-related travel</b> <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
<b>Engagement</b> <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
<b>Reporting</b> <i>Sums totals for AEP and ECCC ONLY</i>	\$2,000.00
<b>Overhead</b> <i>Sums totals for AEP and ECCC ONLY</i>	\$0.00
<b>Total All Grants (from table 16.2.1 above)</b> <i>Sums totals for AEP Tables ONLY</i>	\$0.00
<b>Total All Contracts (from table 16.2.1 above)</b> <i>Sums totals for AEP Tables ONLY</i>	\$180,000.00
<b>Sub- TOTAL</b>	\$245,000.00
<b>Capital*</b> <i>Sums total for AEP</i>	\$0.00
<b>GRAND PROJECT TOTAL</b>	\$245,000.00

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.

Budgeting will be managed by the PI throughout the year and quarterly updates will be provide upon request. In the event of under or over spending, a program amendment will be completed and submitted to the OSM program secretariat to either return or request additional funds to rectify the issue.

Enhanced monitoring for the 2019/2020 fiscal year was under budget. This was a result of i) contracting issues (delays in contracts receiving approval), and ii) salary for new staffing which was budgeted but not approved. The budget for 2021/2022 is on target as of Q3.

The evaluation and report effort is proposed to be contracted. There is a low risk of that contract not being approved.



## 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 blue "+" symbol on the bottom right side of table.

DESCRIPTION	SOURCE	EQUIVALENT AMOUNT (\$CAD)
Kelly Munkittrick	University of Calgary	\$0.00
Click or tap here to enter text.	Click or tap here to enter text.	\$0.00
<b>TOTAL</b>		<b>\$0.00</b>



## 19.0 Consent & Declaration of Completion

**Lead Applicant Name**

Keegan Hicks

**Title/Organization**

Aquatic Scientist/Alberta Environment and Parks

**Signature**

Keegan Hicks

**Date**

2021-10-05

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

Click or tap here to enter text.

**Title/Organization**

Click or tap here to enter text.

**Signature**

Click or tap here to enter text.

**Date**

Click or tap to enter a date.



## PROGRAM OFFICE USE ONLY

### **Governance Review & Decision Process**

*this phase follows submission and triggers the Governance Review*

**TAC Review (Date):**

Click or tap to enter a date.

**ICBMAC Review (Date):**

Click or tap to enter a date.

**SIKIC Review (Date):**

Click or tap to enter a date.

**OC Review (Date):**

Click or tap to enter a date.

**Final Recommendations:**

**Decision Pool:**

Choose an item.

**Notes:**

Click or tap here to enter text.

### **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):**

Click or tap to enter a date.

**SIKIC Review (Date):**

Click or tap to enter a date.

**OC Review (Date):**

Click or tap to enter a date.

**Comments:**

**Decision Pool:**

Choose an item.

**Notes & Additional Actions for Successful Work Plan Implementation:**

Click or tap here to enter text.