

## FOCUSED STUDY ACTIVITY WORK PLAN

### General Information

<p><b>*Decision Pool D: Project Not Funded.</b>          * This decision does not suggest this work is not important but to identify this will be an outcome of the Biological Monitoring Integration Workshop          * Key members of the project team will participate in a Biological Monitoring Integration Workshop to be informed by the Oil Sands Monitoring Secretariat.          * Funding in 2018/19 and beyond is dependent upon the findings of the Biological Monitoring Integration Workshop</p>	
<b>Work Plan Unique Identifier:</b>	Formerly part of R-5-1718
<b>Focused Study Activity Title:</b>	Biotic Synthesis Wildlife Contaminants Component
<b>Focused Study Category:</b>	Monitoring Design and Method Improvement
<b>Geographic Location</b> ( <i>choose from drop-down menu. If Project Location is in more than one area choose from second drop-down</i> )	Entire oil sands region and surrounding areas <span style="float: right;">Choose an item.</span>
<b>Monitoring Site(s) Coordinates</b> ( <i>latitude and longitude</i> )	N/A
<b>Project Leader:</b>	Bruce Pauli (ECCC)
<b>Organization and contact information:</b>	<b>Environment and Climate Change Canada (ECCC)</b> Ecotoxicology and Wildlife Health Division Science and Technology Branch National Wildlife Research Centre 1125 Colonel By Drive, Ottawa, ON N1H 0H3 Tel: 613 998-6690; email: <a href="mailto:bruce.pauli@canada.ca">bruce.pauli@canada.ca</a>
<b>Date Study initiated:</b>	01 April, 2016
<b>Monitoring Category:</b>	<i>Contaminants monitoring with air, water and biodiversity components; methods development and investigation of cause.</i>
<b>Strategic Objective of Focused Study:</b> ( <i>From OSM long-term plan; choose from drop-down menu</i> )	Objective B3: Integration and Synthesis
<b>Hypotheses/Objectives:</b> <i>(Briefly outline the specific hypotheses that your focused study is aiming to address)</i>	This work involves establishing and updating the current state of knowledge on the impacts of oil sands development on biodiversity and wildlife health, particularly with respect to the impacts of the release to the environment of chemicals of concern from oil sands industrial operations.

	<p>Overall objectives focus on:</p> <ol style="list-style-type: none"> <li>1. Consolidating all data from the entire suite of JOSM wildlife contaminants and toxicology monitoring projects, analyzing and assessing the consolidated dataset, and synthesizing the findings from all wildlife contaminants and toxicology monitoring projects.</li> <li>2. Providing recommendations for adaptive monitoring; based on the above-mentioned assessment of the wildlife contaminants and toxicology monitoring data, the project will include an assessment and review of the scientific, regulatory and socio-economic drivers to be used to inform the design of any future oil sands wildlife contaminants and toxicology monitoring projects, how effectively the programs address identified needs, and recommendations for design and implementation of monitoring projects going forward.</li> </ol>
<p><b>Deliverables:</b></p> <p><i>What tangible goal (s) and/or product(s) will the monitoring produce and when?</i></p>	<p><b>Q1 Deliverables:</b></p> <ol style="list-style-type: none"> <li>1. Successful engagement of a database manager/geomatics and spatial analyst expert for data management, assessment and visualization.</li> <li>2. Consolidation of all wildlife contaminants and toxicology monitoring data into a common, structured and georeferenced database.</li> </ol> <p><b>Q2 Deliverables:</b></p> <ol style="list-style-type: none"> <li>1. Synthesizing, assessing and evaluating the consolidated dataset, and synthesizing the findings from all wildlife contaminants and toxicology monitoring projects.</li> </ol> <p><b>Q3 Deliverables:</b></p> <ol style="list-style-type: none"> <li>1. Based on assessment of the data, produce recommendations for adaptive monitoring based on an assessment and review of the scientific, regulatory and socio-economic drivers that need to be considered to inform the design of any future wildlife contaminants and toxicology monitoring projects.</li> </ol> <p><b>Q4 Deliverables:</b></p> <ol style="list-style-type: none"> <li>1. Produce reports and publications from above activities.</li> </ol>

## Detailed Study Plan

### Keywords, hypothesis and the assumptions and constraints behind your hypothesis

Provide a maximum of 10 key words that describe this project. Use commas to separate them:

monitoring, spatial analysis, ecosystem effects, pollution, environmental effects monitoring, cumulative effects, oil sands

**Describe how you will test your hypothesis:** Not applicable.

### Study Plan:

In **Q1** we will engage a database manager/geomatics and spatial analyst expert for data management, assessment and visualization. With the help of this specialist we will consolidate all wildlife contaminants and toxicology monitoring data into a common, structured and georeferenced database. In **Q2** we will synthesize, assess and evaluate the consolidated dataset, conduct spatial analyses on the data and synthesize the findings from the all wildlife contaminants and toxicology monitoring projects. In **Q3**, following an assessment of the data, we will produce recommendations for adaptive monitoring for environmental effects stemming from the release to the environment of chemicals of concern related to oil sands industrial operations; based on our assessment and review of the scientific, regulatory and socio-economic drivers that need to be considered to inform the design of any future wildlife contaminants and toxicology monitoring projects, we will use the results from all activities in Q3 to inform the design and development of wildlife contaminants and toxicology oil sands monitoring projects in 2019/2020 and beyond. In **Q4** we will produce reports and publications from above activities.

### Assumptions and Constraints:

Adequate resources are required to fully and successfully execute this project plan. Obtaining all existing wildlife contaminants and toxicology data from JOSM and other relevant data from project leaders in the component is required (project leaders are required to submit relevant datasets to the internal ECCC database), but this is not considered to be a constraint on the successful delivery of this project plan.

## References:

Relevant references will be gathered following discussions with project participants; a literature database will be created during this project.

## Data Management:

Data management is a completely integral and necessary component of this project. Data management will start with the engagement of a database manager/geomatics and spatial analyst expert for project data management and assessment. Following this, all appropriate datasets will be gathered and consolidated and the data formatted and submitted to a common (internal, ECCC only) database for assessment and spatial analyses etc. The plan is to have all of the data in a common format in a consolidated database by the end of Q1.

Deliverables	Timeframe
Data Collection Period:  Occurs during Q1 in collaboration with Wildlife Health project leads	Q1
Data Analysis Period:  Analysis of the consolidated wildlife contaminants and toxicology database.	Q2
Data Release Date:  Metadata and data consistent, complete and meet basic standard format for publication in Open Data; links to JOSM portal established.	Aimed at end of Q4.

## Reporting and Publications

Provide information on the anticipated reports / publications. (Insert additional rows if needed)

Expected Subject/Titles of Publications or Reports	Short Description of Publication or Report	Expected Year of Publication
Reports on the assessment of the wildlife contaminants and toxicology database, including spatial analyses, identification of data gaps.	Reports on data assessment including data visualizations	2018
Reports and recommendations for adaptive monitoring and monitoring, workplans.	Reports on recommendations for monitoring wildlife contaminants and toxicology and environmental impacts of oil sands industrial operations.  Based on assessments and recommendations, modified workplans for monitoring wildlife contaminants and toxicology in the oil sands.	Q4 (2019)

## Technical / Professional Roles and Responsibilities

Identify members of the monitoring team/organization, their roles and responsibilities. Identify monitoring organization leads if different from overall monitoring activity lead. (Insert additional rows if needed)

Role / Resource Name / Organization	Responsibilities
Project Participant (ECCC)	Project lead
Project Participant (ECCC)	Data management and spatial analysis specialist
Project Participant (ECCC)	Data management assistant
Project Participants (ECCC)	Wildlife Contaminants and Toxicology project leads

## Deliverables

Deliverable(s) (please provide enough information to support status reporting)
<b>Q1 – April to June</b>
Engagement of a database manager/geomatics and spatial analyst expert for data management, assessment and visualization.
Consolidation of all wildlife contaminants and toxicology monitoring data into a common, structured and georeferenced database.
<b>Q2 – July to September</b>
Findings from all wildlife contaminants and toxicology monitoring projects synthesized, assessed and evaluated.
<b>Q3 – October to December</b>
Recommendations produced for adaptive monitoring and for the design of future wildlife contaminants and toxicology monitoring projects.
<b>Q4 – January to March</b>
Produce reports and publications from above activities.

## Detailed Financial Breakdown – 2018-2019

Budget requirements – List areas that require budget expenditures: (ADD OR DELETE BUDGET CATEGORIES AS REQUIRED)	OS Funding	External Funding (outside JOSM)
<b>O&amp;M - Operations and Maintenance:</b>		
Helicopter Costs	\$	\$
Field Costs	\$	\$
Data Management	\$44,690	\$
Internal Lab Analysis	\$	\$
Consumable Materials & Supplies	\$	\$
<b>Sub-Total</b>	<b>\$44,690</b>	<b>\$</b>
<b>O&amp;M - Travel</b>		
Field Work	\$	\$
Conferences ( <i>identify conference</i> )	\$	\$
Meeting ( <i>identify meeting</i> )	\$	\$
<b>Sub-Total</b>	<b>\$</b>	<b>\$</b>
<b>O&amp;M - External Contracts :</b>		
Technical / Professional Assistant	\$	\$
<b>Sub-Total</b>	<b>\$</b>	<b>\$</b>
<b>Salaries:</b>		
Technical / Professional Assistant (casuals) <sup>1</sup>	\$32,265 <sup>1</sup>	
<b>Sub-Total</b>	<b>\$32,265</b>	<b>\$</b>
<b>Total Salaries<sup>1</sup></b>	<b>\$32,265<sup>1</sup></b>	<b>\$</b>
<b>Total O&amp;M</b>	<b>\$44,960</b>	<b>\$</b>
<b>2018-2019 GRAND TOTAL*</b>	<b>\$76,955</b>	<b>\$</b>

<sup>1</sup>Includes associated EBP, Accommodations, PWGSC Accommodations, and SCC costs

\*Grand Total including EBP, Accommodations, PWGSC Accommodations, and SCC costs

## Appendix A - Approvals

<b>Project Submitted by:</b>		
Name: Bruce Pauli		
Organization: ECCC	Signature:	Date:
<b>Project Approved by:</b>		
Signature		Signature
Date		Date

## Activity Planning Review and Evaluation

*To be completed by OSM Administration*

Date Completed	Review type	Validated by (insert name and title)
	Program Management review completed	