

Global Water Futures 2021 Operations Team Meeting – Project Reporting Template

Instructions: All GWF projects are asked to provide a summary update on their activities and accomplishments in preparation for the upcoming Operations Team meeting. **Please submit these by email to chris.debeer@usask.ca by no later than December 2.** These will be used to help guide discussions and breakout synthesis activities and will be made generally accessible on our website in advance of the meeting.

Project Name:	Boreal Water Futures 2: Modelling Hydrological Processes for Wildfire and Carbon Management
Our major accomplishments to date are:	
<ul style="list-style-type: none"> • Completion of parameterization and testing of the Peatland Hydrological Impacts model • Developed partnership with fire managers and visited new field site - Tomahawk Peat Fire in Parkland County, Alberta. • Coordination with Sungro Horticulture Ltd to gain access to recently burned and undisturbed peatland field sites in Parkland County, Alberta • Collection of vegetation, soil moisture, water table and carbon fluxes at Parkland County field sites in months immediately following fire • Publication in Journal of Hydrology of restored-burned peatland carbon loss and modelling smouldering potential at Wainfleet Bog • Publication in International Journal of Wildland Fire using multi-criteria decision analysis based on hydrological and wildfire expert opinion to estimate peat fire risk in Alberta's Boreal Plains • Instrumentation of field sites at the Parry Sound 33 wildfire 	
Our current activities are:	
<ul style="list-style-type: none"> • Model output analysis of the Peatland Hydrological Impacts model run under steady state conditions • Testing the coupling of the Peatland Hydrological Impacts model with both the PSI (smouldering) and CHI (carbon) sub-models • Modelling of peatland carbon recovery near completion. High impact paper under development and led by Dr. Sophie Wilkinson • Developing partnership with Parkland County to provide data for future objectives • Analysis of field carbon flux data from Parkland County study sites and combination with literature data to build post-fire ecosystem trajectory and evapotranspiration partitioning • Determining changes in methane production and consumption potentials relative to unburned peatlands from peat samples from Parry Sound 33 wildfire and Parkland Country, AB and evaluating the role of charcoal in these shifts. 	
The main accomplishments expected by the end of the project are:	
<ul style="list-style-type: none"> • Technical paper on the importance of peat properties and hydrologic feedbacks using the model out from the Peatland Hydrological Impacts model • High impact paper on modelled peatland carbon recovery • Modelling effort contributions to development of Peat Moisture Code with Canadian Forest Service • High impact paper on potential of fuel management in peatlands as nature-based climate solution • 	

Here is a key visual from the project (figure, photo, table, graph, etc.)

Field visit to new research site on the Tomahawk Peat Fire in Parkland County, Alberta.

