

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:	Core - Water Resources Management Modelling
Our major accomplishments to date are:	
<ul style="list-style-type: none"> • Mizuroute vector-based routing model complete with reservoirs, withdrawals and lakes (S Gharai). Publication: https://doi.org/10.1029/2020MS002434 • Adoption of Mizuroute model into the Community Earth System Model community of practice repository (https://github.com/ESCOMP/mizuRoute) • Development of generic reservoir/irrigation models for hydrologic models (A Tefs, F Yassin) Publications: https://doi.org/10.1016/j.envsoft.2021.105025, https://doi.org/10.5194/hess-2019-7 • Renaturalized scenarios produced in HYPE and MESH for IWRM • IWRM scenarios using economic and agricultural scenarios (developed by Pat Gober and Hayley Carlson) complete (L Eamen) • • 	
Our current activities are:	
<ul style="list-style-type: none"> • Integration of HYPE and mizuroute (A Tefs, S Gharai) • Integration of MESH and mizuroute (F Yassin, S Gharai) • Finalizing climate change scenarios from HYPE and MESH (A Tefs, F Yassin) • Integration of HYPE and MESH scenarios into IWRM (L Eamen) • Climate change + renaturalization scenarios in IWRM (L Eamen) • Manuscript for MESH vector based routing • Commentary paper for IWRM models vs. other model types to look at scenarios • Ice-affected rating curve development for IWRM framework • Integration of Manitoba and Saskatchewan river IWRM models. • • 	
The main accomplishments expected by the end of the project are:	
<ul style="list-style-type: none"> • Integration of lakes, reservoirs, irrigation and withdrawals in land surface and hydrologic models • Comparison of technologies for modelling water resource management: <ul style="list-style-type: none"> ○ Network routing products, hydrologic models and IWRM models • Production of climate change and renaturalized scenarios of hydrology to assess with/without regulation and climate change impacts • Adaptation of IWRM platform specifically for cold regions (i.e., ice affected stage-discharge) • Visualization of water resource management scenarios/outputs 	

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

