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:	

Our major accomplishments to date are:

- Development of eDNA/eRNA platform for biomonitoring of aquatic ecosystems
- Collection of eDNA data for genomic baseline of boreal ecosystems (North Saskatchewan River and ELA lakes)
- Validation eDNA and eRNA-based zooplankton metabarcoding against the traditional morphological identification
- Development and application of normalized activity of microbial community and normalized vitality of zooplankton communities for assessment the ecological impact of artificial stressors
- Implement of zooplankton metabarcoding for assessment of ecological impacts of cleaning practices after oil spill
- Using fish gut microbiome as mimic ecosystem, the microbiome can reflect damaged statute of host (habitat) exposed to BaP (model compound of persistent organic pollution) and Fluoxetine (Pharmaceuticals)
- Development and implement of eRNA based wastewater surveillance of SARS-CoV-2 and major Variants of Concern supporting public health authority of Saskatoon, Prince Albert, North Battleford, Waterloo, Peal Region,
- Development and maintenance of weekly updates to public Dashboard with data
- Continued public education through newspaper, radio and television interviews
- Participation I four national panels on COVID-19 monitoring
- Continue to advise Saskatchewan Public Health Authority

Our current activities are:

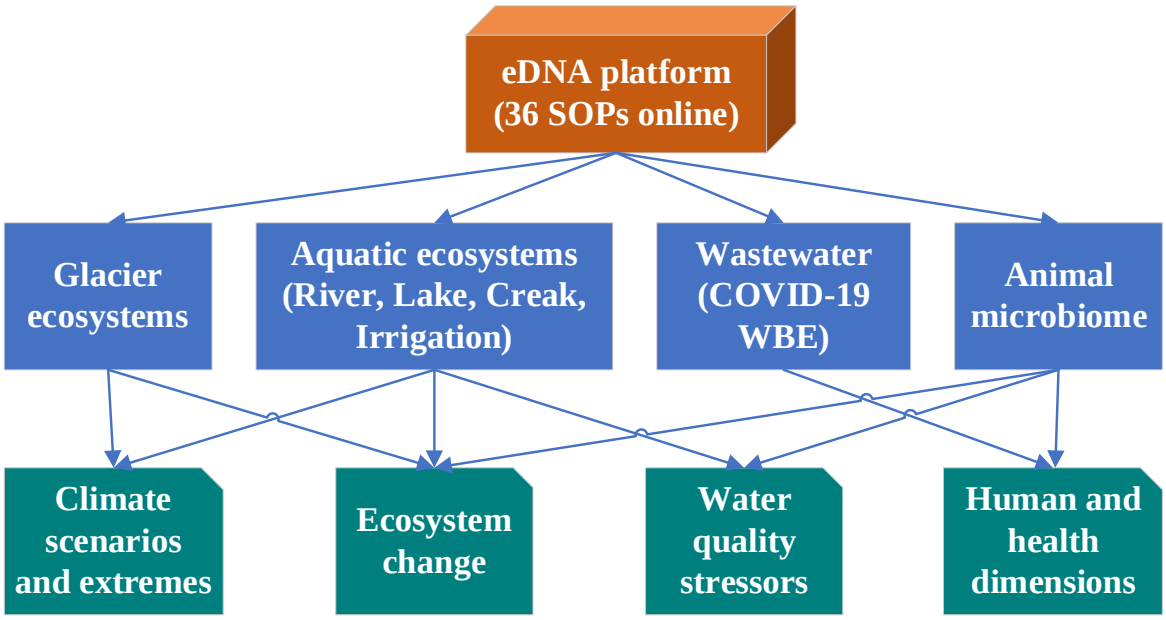
- WBE of COVID-19
- Data-analyses and paper writing: impact of selenium exposure and diluted bitumen spill on whole lake ecosystems
- Data-analyses and paper writing: eDNA-based bio-survey of irrigation systems (South Calgary, Alberta Province) to find out the relationship between plankton communities and nutrient availability, eDNA indicators for agriculture chemical stressors
- Validation of macro bathos and fish metabarcoding against traditional approaches
- Maintaining public dashboard
- Continue to do public interviews and answer inquiries from public health authorities and the public

The main accomplishments expected by the end of the project are:

- WBE of COVID-19
- Ecotoxicological assessment of Selenium to boreal lakes
- Ecotoxicological assessment of diluted bitumen to boreal lakes
- In situ eDNA indicators projecting irrigation district water quality

- Comparisons between eDNA metabarcoding of macro bathos and fish metabarcoding and traditional approaches

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



- **21 National collaborators**
- **12 international collaborators**
- **Initiative lab of Canadian COVID-19 wastewater coalition**

- **27 Publications**
- **5 Graduate and Undergraduate Theses**
- **18 Invited Conference Presentations**
- **51 Non-invited Conference Presentations**
- **97 news report (November 2020 ~ September 2021)**
- **1 live dashboard for COVDID-19 WBE**