**ESS-DIVE Metadata for SSF Data Package**

**Title**:

Schneider Springs Fire Study 2023 for Ecosystem Respiration Rates: Surface Water Chemistry and Hydrologic Sensor Data across the Yakima River Basin, Washington, USA

**Alternative Identifiers:**

**Abstract:**

This dataset supports a broader study examining the drivers of spatial variability in wildfire impacts across the Yakima River Basin. We acknowledge the Yakama Nation as owners and caretakers of the lands where we collected these data. We thank the Confederated Tribes and Bands of the Yakama Nation Tribal Council and Yakama Nation Fisheries for working with us to facilitate sample collection and optimization of data usage according to their values and worldview. Data provided within this dataset were generated from sample collection across 17 total sites (8 sites affected by a recent wildfire, 9 sites unaffected by a recent wildfire) within multiple rivers throughout the Yakima River Basin in Washington, USA from May-July 2023. Fire affected sites are defined as those affected by the 2021 Schneider Springs Fire, based on the drainage area of the streams being within the 2021 Schneider Springs Fire burn perimeter or not (Figure 1 in readme\_SSF.pdf). The contents include surface water geochemistry data (dissolved organic carbon; total dissolved nitrogen; total suspended solids); short-term sonde data (specific conductivity; turbidity; pH; Chl A; temperature); stream depth data; stream velocity; manual chamber open channel respiration data; sensor time-series data (oxygen; water pressure; barometric pressure); field metadata (including qualitative information on in stream and river corridor characteristics); and environmental context photos taken in the field. The dataset also includes a summary file of the sensor data; plots of the sensor data; and R scripts used to generate the plots. Sensors were only recovered at 15 out of the 17 sites, and not all sensors were recovered at all 15 sites (see Methods section for more details), therefore all data does not exist at all sites. Data from a 2022 study at the same sites, as well as additional sites, can be found at <https://data.ess-dive.lbl.gov/view/doi:10.15485/1969566>.

This dataset is comprised of one folder with field photos and one main data folder with six subfolders. The main data folder consists of (1) file-level metadata; (2) data dictionary; (3) field metadata; (4) total suspended solids (TSS) data; (5) dissolved organic carbon (DOC, measured as non-purgeable organic carbon, NPOC) data and averages; (5) total dissolved nitrogen (TN) data and averages; (6) field protocol; (7) readme; (8) methods codes; (9) international generic sample number (IGSN) mapping file; (10) sensor installation methods summary; (11) stream depth and averages; and (12) stream velocity. The BarotrollAtm (barometric pressure; temperature), DepthHOBO (water pressure; temperature), MantaRiver (specific conductivity; turbidity; pH; Chl A; temperature), EXO (specific conductivity; pH; temperature), miniDOT (dissolved oxygen; temperature), and miniDOTManualChamber (dissolved oxygen; temperature) subfolders contain time-series data, plots, and summary files. All files are .csv, .pdf, .jpg, .jpeg, or .mov.

**Keywords**:

River corridor

Surface water

Freshwater

River

Stream

Watershed

Biogeochemistry

Hydrobiogeochemical function

Hydrologic exchange

Organic matter

Stream metabolism

Organic matter degradation

Field experiment

Wildfire

Fire impacts

Total ecosystem respiration

ERtot

Water column respiration

ERwc

Sediment respiration

ERsed

**Data variables:**

TSS

Total suspended solids

Dissolved organic carbon

DOC

Non-purgeable organic carbon

NPOC

Total dissolved nitrogen

TN

TDN

Vegetation

Canopy cover

Macrophyte cover

Water temperature

Depth

Specific conductance

Turbidity

pH

Chlorophyll A

Dissolved oxygen

Barometric pressure

Air temperature

Absolute pressure

**Pub date**:

**Data usage rights**:

Creative Commons Attribution

**Project**:

River Corridor and Watershed Biogeochemistry SFA

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**DOE Contracts**:

DOE Award #54737

**Related reference**:

Agarwal, D., Cholia, S., Hendrix, V. C., Crystal-Ornelas, R., Snavely, C., Damerow, J., & Varadharajan. (2022). ESS-DIVE Reporting Format for Dataset Metadata. Environmental Systems Science Data Infrastructure for a Virtual Ecosystem (ESS-DIVE), ESS-DIVE repository. <https://doi.org/10.15485/1866026>

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**Start date**:

2023-05-15

**End date**:

2023-09-25

**Location description**:

refer to metadata spreadsheet

**Coordinates**:

refer to metadata spreadsheet

**Methods:**

We monitored diurnal dissolved oxygen dynamics and water pressure at 1-minute intervals from May-July in 2023 using in stream sensors at 17 sites by 2-person teams in multiple rivers within the Yakima River Basin. Each site was instrumented with a MiniDOT Oxygen Logger (PME) and HOBO Water Level Data Logger (Onset) during the week of May 15-20, 2023. In stream sensors were deployed either on a cinderblock lying on the bottom of the streambed placed as close to the thalweg as possible, on a piece of rebar installed in the stream, or both. Teams collected sample data, additional sensor data, qualitative metadata, and environmental context photos, at the same 17 sites during the week of May 22-25, 2023. Sensors from May deployments were retrieved by teams during the week of July 18-27. Due to high flow conditions, the sensors at one site were unable to be retrieved during the week of July 18-27 so a team went out to that site on September 25, 2023. Upon arrival, the team was only able to recover one HOBO Water Level. Due to high flow conditions throughout the deployment period, all sensors at 2 of the 17 sites were washed away and not recovered. At an additional 3 sites, sensors installed on the cinderblock were lost; however, the rebar sensors were recovered. The same teams also measured depth and velocity measurements along multiple transects using both manual measurements with a Swoffer Wading Rod, and the Float method during the week of July 18-27. See SSF\_Field\_Protocol.pdf for field method details. Surface water samples were processed and analyzed in the laboratory after field collection. For details regarding laboratory methods, see the alphanumeric methods codes located in the header rows of the chemistry data csv file and their associated definitions in SSF\_Methods\_Codes.csv.