1. This script generates bioenergetics output using synthetic parameter set 001 (see Supplementary Table 1).
2. Output is generated for all 773 National Hydrography Dataset (NHD) reaches in the Cataloging Unit (HUC8) 12100201 (Upper Guadalupe River).
3. Change directory path in the script to match your directory at lines 57, 67, and 235.
4. Descriptions of variables generated in the output file are shown in the table below

|  |  |
| --- | --- |
| **variable** | **description** |
| julian | day of year |
| temp | water temperature in degrees Celsius |
| C1\_ins | instantaneous (daily) consumption in joules |
| C2\_ins | instantaneous (daily) consumption in grams |
| R1\_ins | instantaneous (daily) respiration in joules |
| R2\_ins | instantaneous (daily) respiration in grams |
| F1\_ins | instantaneous (daily) egestion in joules |
| F2\_ins | instantaneous (daily) egestion in grams |
| U1\_ins | instantaneous (daily) excretion in joules |
| U2\_ins | instantaneous (daily) excretion in grams |
| SDA1\_ins | instantaneous (daily) specific dynamic action in joules |
| SDA2\_ins | instantaneous (daily) specific dynamic action in grams |
| W1\_ins | instantaneous (daily) energy balance in joules |
| W2\_ins | instantaneous (daily) mass balance in grams |
| C1\_cum | Accumulated (since julian day 1) consumption in joules |
| C2\_cum | Accumulated (since julian day 1) consumption in grams |
| R1\_cum | Accumulated (since julian day 1) respiration in joules |
| R2\_cum | Accumulated (since julian day 1) respiration in grams |
| F1\_cum | Accumulated (since julian day 1) egestion in joules |
| F2\_cum | Accumulated (since julian day 1) egestion in grams |
| U1\_cum | Accumulated (since julian day 1) excretion in joules |
| U2\_cum | Accumulated (since julian day 1) excretion in grams |
| SDA1\_cum | Accumulated (since julian day 1) specific dynamic action in joules |
| SDA2\_cum | Accumulated (since julian day 1) specific dynamic action in grams |
| W1\_cum | Accumulated (since julian day 1) energy balance in joules |
| W2\_cum | Accumulated (since julian day 1) mass balance in grams |
| COMID | Common identifier of the National Hydrography Dataset (NHD) Flowline |