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### Data S1

### Master code file for running all supplemental files, data from manual data collection, compiled data from Hall 1970 and 1970, and watershed data.

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### File list

master.R

helpers.R

siteData:

NHC\_site\_metadata.csv

all\_nhc\_ysi\_data.csv

NOAA\_airpres.csv

rating\_curves

discharge\_measurements.csv

discharge\_measurements\_NHC\_UNHC.csv

NHC\_UNHC\_Q.csv

longitudinal\_sampling:

nhc\_channel\_crosssections.csv

nhc\_habitat\_survey\_20190225.csv

nhc\_habitat\_survey\_20190307.csv

NHCLongitudinalDO\_20190308.csv

NHCLongitudinalDO\_20191009.csv

watershed:

nhcblands\_usgs\_stats.csv

nlcd\_1992-2016\_summary.csv

nldas.csv

noaa\_air\_temp.csv

prism\_raw.csv

hall:

hall\_discharge\_temp\_daily.csv

hall\_table\_5\_flood\_stages\_cbp.csv

hall\_table\_13\_p.csv

hall\_table\_14\_nitrogen.csv

hall\_table\_15.csv

hall\_table\_26.csv

hall\_tableA2\_k\_morphology.csv

hall\_tableA2\_k\_morphology\_extended.csv

hall\_figure5\_digitized\_ratingcurve.csv

hall\_figure26\_digitized\_dailystage.csv

hall\_figure27\_digitized\_mean\_daily\_temp.csv

**Description**

master.R – Instructions for running the files in sequence to download and format data. This file is the same one for all of the supplementary data packages and the header information must be run before other files can be sourced.

helpers.R – Functions used throughout the repository. This file can be sourced at the beginning of the file and doesn’t need to be opened.

NHC\_site\_metadata.csv – metadata for sites included in the modern study including latitude, longitude, sensor offsets from the stream bed, upstream geomorphic characteristics, watershed areas (ws\_area.km2), percent impervious surface cover (isc.percent), comid and slope from the national hydrography dataset.

all\_nhc\_ysi\_data.csv – Manually collected data from sensor visits

NOAA\_airpres.csv – Air pressure data downloaded from the National Oceanic and Atmospheric Administration based on the latitude and longitude of the study reach outlet.

discharge\_measurements.csv – Manually measured discharge and velocities from all sites.

discharge\_measurements\_NHC\_UNHC.csv – data paired with discharge measurements for the upstream and downstream sites

NHC\_UNHC\_Q.csv – discharge measurements for the upstream and downstream sites

nhc\_channel\_crosssections.csv – Compiled data from geomorphic surveys in the 1 km upstream of the upstream and downstream sampling sites

nhc\_habitat\_survey\_20190225.csv – Survey of habitat changes along the entire study reach on 25 Feb 2019.

nhc\_habitat\_survey\_20190307.csv - Survey of habitat changes along the entire study reach on 7 March 2019.

NHCLongitudinalDO\_20190308.csv – Longitudinal samples of water chemistry and widths and thalweg depths along the entire study reach on 8 March 2019.

NHCLongitudinalDO\_20191009.csv – Longitudinal samples of water chemistry and widths and thalweg depths along the entire study reach on 9 Oct 2019.

nhcblands\_usgs\_stats.csv – data and calculated metrics (Richards Baker Index (RBI), autoregressive coefficient (ar\_1), and 5th quantile of discharge (q05)) for discharge at the Eno River USGS gauge, from a basin neighboring NHC.

nlcd\_1992-2016\_summary.csv - Data from the National Land Cover Dataset on total land area (CellTally) in the NHC watershed in each land use category during each survey year. (see DataS4 to generate)

nldas.csv – Data on precipitation from NLDAS summarized over the watershed area (see DataS4 to generate)

noaa\_air\_temp.csv – Daily air temperature data from the National Oceanic and Atmospheric Administration based on the latitude and longitude of the study reach outlet.

prism\_raw.csv – Precipitation data from PRISM. (see DataS4 to generate)

hall\_discharge\_temp\_daily.csv – Temperature and discharge compiled from digitized figures in Hall 1970 and 1972.

hall\_table\_5\_flood\_stages\_cbp.csv – Data table 5 from Hall 1970

hall\_table\_13\_p.csv – Data table 13 from Hall 1970

hall\_table\_14\_nitrogen.csv - Data table 14 from Hall 1970

hall\_table\_15.csv - Data table 15 from Hall 1970

hall\_table\_26.csv - Data table 26 from Hall 1970

hall\_tableA2\_k\_morphology.csv - Data table A2 from Hall 1970

hall\_tableA2\_k\_morphology\_extended.csv - Data table A2 from Hall 1970 extended to include calculations of gas exchange in other units

hall\_figure5\_digitized\_ratingcurve.csv - Data digitized from figure 5 from Hall 1970

hall\_figure26\_digitized\_dailystage.csv Data digitized from figure 26 from Hall 1970

hall\_figure27\_digitized\_mean\_daily\_temp.csv - Data digitized from figure 27 from Hall 1970