New parameters:

srpm2 (parameters.bsn) – P sorption capacity of soil per unit soil surface area [gP/m2]. Range 0.001-0.1

adskeq (parameters.bsn) – Langmuir equilibrium coefficient for P sorption [m3/g]. Range 0.001-1.0

srpm2 (nutrients.cha) – P sorption capacity of sediment per unit surface area [gP/m2]. Range 0.001-0.1

adskeq (nutrients.cha) – Langmuir equilibrium coefficient for P sorption in streams [m3/g]. Range 0.001-1.0

w12 (nutrients.cha) – bioturbation rate coefficient between aerobic and anaerobic layers [-]. Range 0.0001-0.1

cbod\_half (nutrients.cha) – carbonaceous biological oxygen demand limitation on bioturbation [mg/L]. Range 10-100

dox\_half (nutrients.cha) – dissolved oxygen impact on P adsorption and bioturbation [mg/L]. Range 1-10

ch\_params (nutrients.res) – points to which channel nutrient file to use for reservoir nutrient parameter values (e.g. srpm2 and adskeq)

\* My input files also include ‘sbdk’ in parameters.bsn but this can be ignored. Likewise, I added the sediment transport parameters for the Kodatie modelling option as to the sediment.cha file, which can be ignored in general.

New initial conditions:

\*I created a new input file, streambed.ini, for streambed initial P concentrations.

aer\_orgp (streambed.ini) – initial organic P concentration in aerobic layer [mgP/kg]. Range 1-100

aer\_minpa (streambed.ini) – initial active mineral P concentration in aerobic layer [mgP/kg]. Range 5-500

aer\_minps (streambed.ini) – initial stable mineral P concentration in aerobic layer [mgP/kg]. Range 50-5000

aer\_disp (streambed.ini) – initial dissolved mineral P concentration in aerobic layer [mgP/L]. Range 0.01-10

anaer\_orgp (streambed.ini) – initial organic P concentration in aerobic layer [mgP/kg]. Range 1-100

anaer\_minpa (streambed.ini) – initial active mineral P concentration in aerobic layer [mgP/kg]. Range 5-500

anaer\_minps (streambed.ini) – initial stable mineral P concentration in aerobic layer [mgP/kg]. Range 50-5000

anaer\_disp (streambed.ini) – initial dissolved mineral P concentration in aerobic layer [mgP/L]. Range 0.01-10

All code and inputs files for Upper Sangamon watershed is online at https://github.com/kevin-wallington/SWAT\_P.RR