

Answers to Questions posed in Lab 5:

Lab 5, Slide 3

- What happens if you change the nutrient loadings from the Caddo River, such as doubling N, P, and detrital loadings?
 - As shown in Slides 9 and 10, by doubling the nutrient loadings from the Caddo River, there are large increases in the green and blue green algae.
 - Slide 11 shows that doubling the Nutrient input from the river will reduce the oxygen levels in the majority of the reservoir
 - Slide 12 shows that by doubling nutrient inflows, the fish levels in the epilimnion of the lake are generally increased, with a very large change in the hybrid striped bass population.
- What is the trophic status of the lake?
 - An example of the Trophic State Index is shown in Slide 12:

Based on the range of the TSI (40.7 to 63.5), the SD = 2.15, and TP = 61.5 ug/L, the riverine epilimnion (in the control run) can be characterized as Eutrophic.

“The TSI(CHL) > TSI(SD), which may indicate that large particulates dominate.

How does the TSI (Trophic State Index) vary from the riverine to the lacustrine segments?

Slide 15 compares and contrasts the TSI's of the riverine and lacustrine epilimnion segments under the control scenario. This comparison suggests both the riverine and lacustrine segments are mesotrophic to eutrophic, with the riverine tending to be more eutrophic than the lacustrine. This could be due to the greater degree of dilution that occurs in the lacustrine part of the reservoir, and to the greater settling out of sediment and associated P.

Hint: Table 8 (page 131) of the Technical Documentation gives the trophic states according to the TSI (chl), which you can compute in AQUATOX.