Missouri Department of Natural Resources

EPA Region 7 Nutrient Benchmarks: Streams

Parameter	Literature[1] (range)	Nutrient Regions[4] (range)	Reference Streams (median)	Tri-section[5] (median)	25% (percentile)	MEANS (all methods)	Benchmarks
Total Nitrogen (mg/L)	0.7 – 1.5[1] 0.15 – 1.10[2] 0.51 – 0.54[3]	0.54 – 2.18	1.08	0.81	0.82	0.964	0.9
Total Phosphorus (mg/L)	0.025 – 0.075[1] 0.023 – 0.060[2] 0.027 – 0.043[3]	0.01 – 0.128	0.08	0.07	0.07	0.052	0.075
Sestonic chl-a (µg/L)	10 – 30[1]	0.9 – 3.0	3.3	2.8	2.0	6.0	8.0
Benthic chl-a (mg/m^2)	20 – 70[1]	NA	24.2	20.3	11.9	25.4	40.0

1. Dodds WK, Jones JR, Welch EB (1998) Suggested classification of stream trophic state: Distributions of temperate stream types by chlorophyll, total nitrogen, and phosphorus. Water Res. 32, 1455-1462. These values are for streams in the mesotrophic range.
2. Dodds, W.K. and R.M. Oakes 2004. A technique for establishing reference nutrient concentrations across watersheds affected by humans. Limnology and Oceanography Methods 2: 333-341.
3. Dodds, W.K., V.H. Smith, and K. Lohman2002. Nitrogen and phosphorus relationships to benthic algal biomass in temperate streams. Canadian Journal of Fisheries and aquatic Sciences 59: 865-874.
4. From EPA 822-B-00-017, -18, -019, -020; EPA 822-B-01-013, -014, -016
5. Tri-section values are for upper one-third streams in US EPA Region 7 having highest total richness for macroinvertebrates.