

## 10 CSR 20-7.031(4)(N) Nutrients and Chlorophyll in Lakes and Reservoirs

---

## 10 CSR 20-7.031(4)(O) Nutrients in Streams

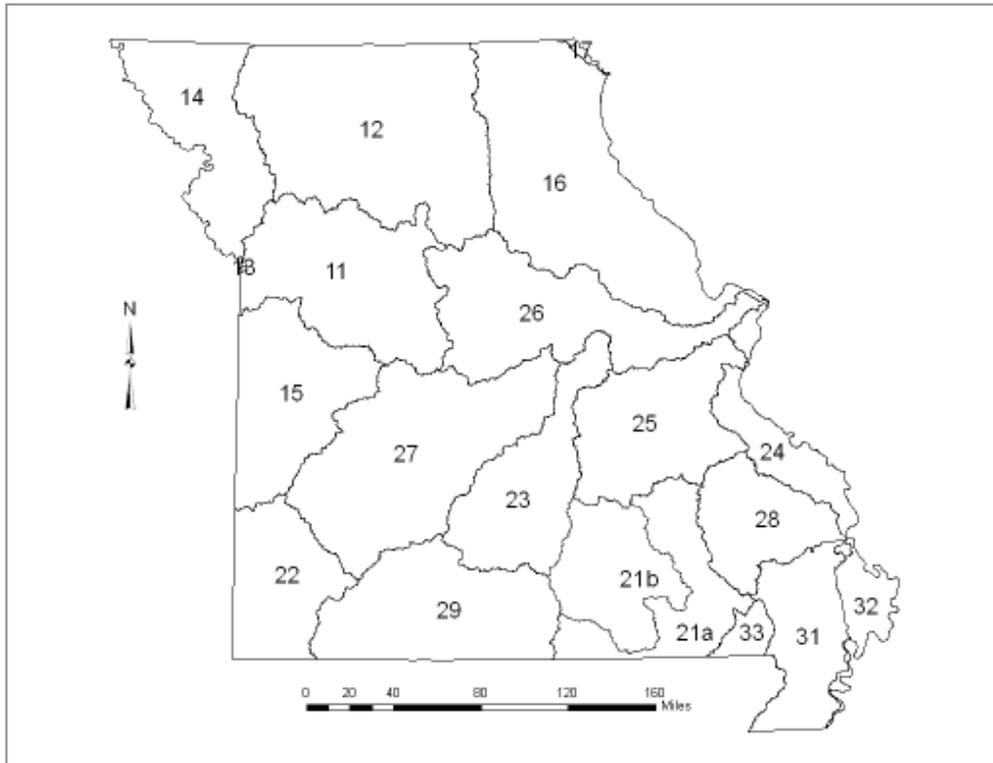
### 1. Definitions

A. **Ecological Drainage Units (EDUs) group watersheds that share a common zoogeographic history, physiographic and climatic characteristics, and therefore likely have a distinct set of freshwater assemblages and habitats. EDUs are hypothesized to account for the variability within fish zoogeographic sub-regions due to finer-scale drainage basin boundaries and physiography. EDUs are delineated as groups of 8-digit US Geological Survey Hydrologic Unit watersheds. EDUS were qualitatively defined by the TNC Freshwater Initiative using primarily USFS Fish Zoogeographic Subregions, USFS Ecoregions and Subsections, and major drainage divisions.**

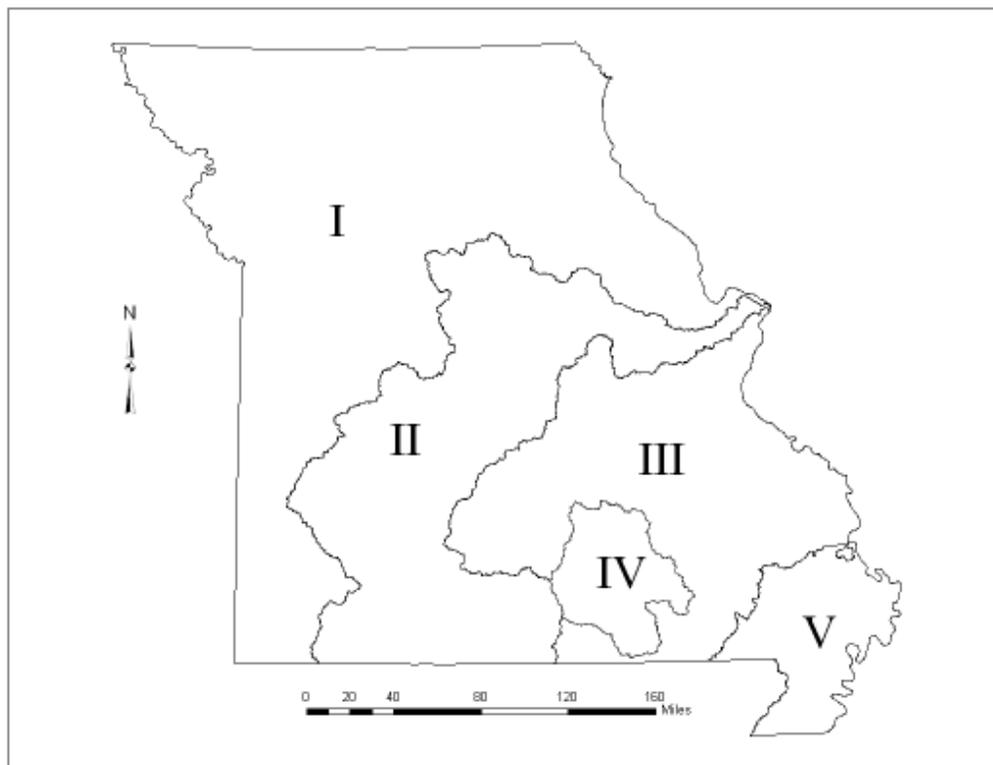
([http://www.2c1forest.org/atlas/metadata/edu\\_metadata.htm](http://www.2c1forest.org/atlas/metadata/edu_metadata.htm)). There are 19 EDUs that are, at least partially within the boundaries of the state of Missouri (figure 1).

B. **Stream Nutrient Criteria Zones – the state is divided into five distinct zones (figure 2). Four of them comprise of aggregated EDUS. One (Zone IV) constitutes a portion of EDU 21 (Ozarks/Black/Current), the remainder of which is in Zone III. Each zone is considered homogeneous enough to receive distinct nutrient criteria (Table O).**

2. **This rule applies to all streams and rivers that are waters of the state except for the Mississippi River and the Missouri River.**
3. **The criteria – expressed as maximum concentration - for Total Nitrogen (TN) and Total Phosphorus (TP) in all classified streams and rivers - except for the Mississippi River and the Missouri River – as specified in this rule are assigned by Stream Nutrient Criteria Zones in Table P.**



**Figure 1: Distribution of Ecological Drainage Units (EDU) in Missouri.**



**Figure 2: Stream Nutrient Criteria Zones**

**Table O: Nutrient Criteria Zones as Delineated by Ecological Drainage Units**

Stream Nutrient Criteria Zone	Ecological Drainage Unit	
I	11	Central Plains/Blackwater/Lamine
	12	Central Plains/Grand/Chariton
	13	Central Plains/Kansas
	14	Central Plains/Nishnobotna/Platte
	15	Central Plains/Osage/South Grand
	16	Central Plains/Cuivre/Salt
	17	Central Plains/ Des Moines
	22	Ozarks/Neosho
II	26	Ozarks/Moreau/Loutre
	27	Ozarks/Osage
	29	Ozarks/White
III	21a	Ozarks/Black/Current (outside ONRW watersheds)
	23	Ozarks/Gasconade
	24	Ozarks/Apple/Joachim
	25	Ozarks/Meramec
	28	Ozarks/Upper St Francis/Castor
IV	21b	Ozarks/Black/Current (ONRW watersheds)
V	31	Mississippi Alluvial Basin/St Francis/Little
	32	Mississippi Alluvial Basin/St Johns Bayou
	33	Mississippi Alluvial Basin/Black/Cache

**Table P: Nutrient Criteria for Streams by Zone**

Stream Nutrient Criteria Zone	Total Nitrogen (µg/L)	Total Phosphorus (µg/L)
I	900	75
II	700	35
III	500	31
IV	430	10
V	500	75

[http://www.dnr.mo.gov/env/wpp/wqstandards/wq\\_nutrient-criteria.htm](http://www.dnr.mo.gov/env/wpp/wqstandards/wq_nutrient-criteria.htm)