Forest Loading

Forest scientists think Phase 5 loading too high

Current loading averages in CB Model Phase 5:	TN lbs/ac/yr	TP lbs/ac/yr	TSS tons/ac/yr
Urban Pervious	9.43	0.57	0.07
Not Urban, not Ag (includes forest)	3.1	0.13	0.03
Harvested Forest	24	1.14	

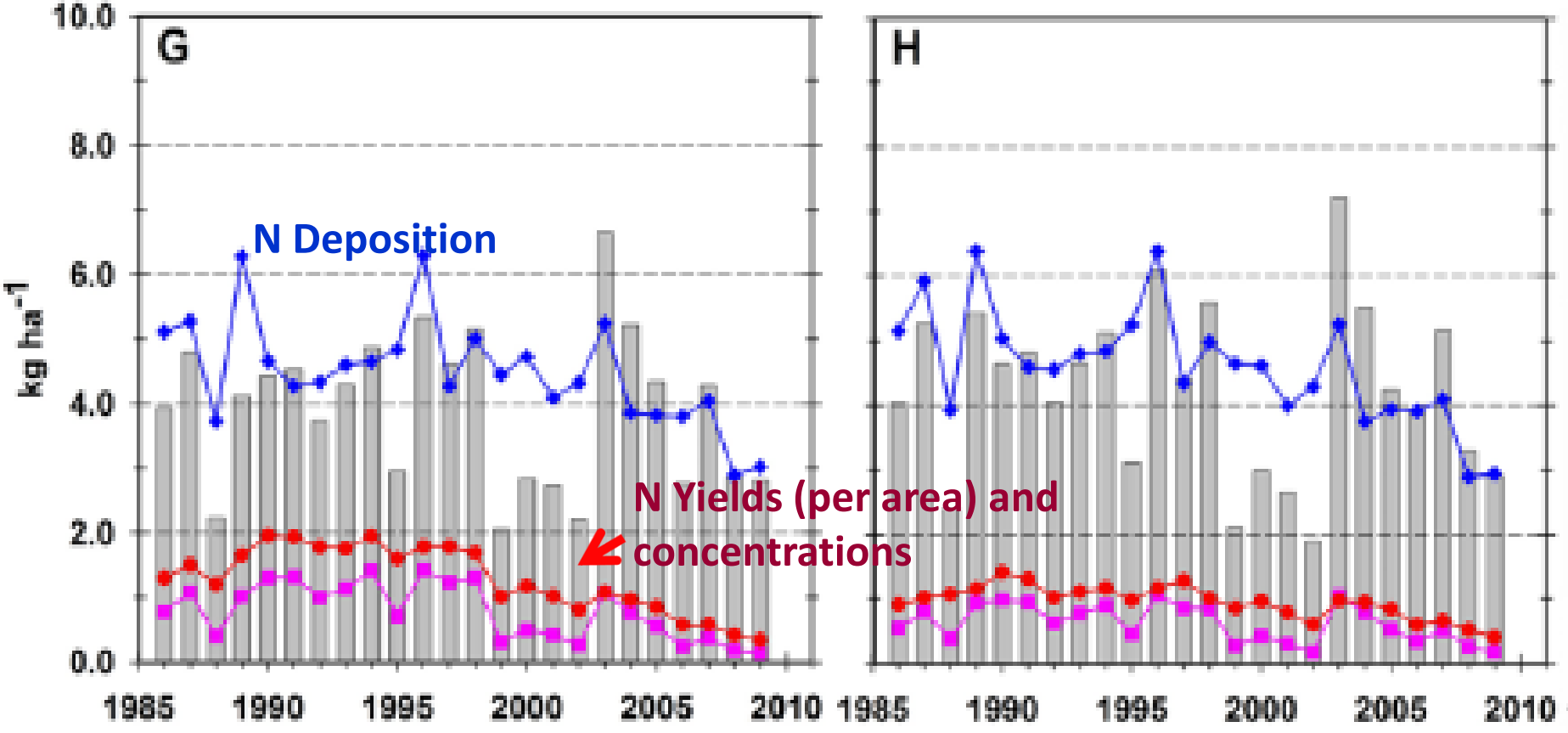
Forest N export and retention in the Chesapeake Basin (Pan et al.) PnET-CN Model

Current N Scenario (Mean N deposition = 10.04 kg N ha^{-1} yr^{-1}

8.9 lbs N ac/yr

Tree Groups	Area (km^2)	Retention (%)	
			average
Spruce-fir	22	78	
Oak-hickory	52,065	90	**1.1 lbs/N/yr**
Pine	7,404	84	
Oak-pine	14,724	84	
Region	94,514	88	

Nine Forested watersheds in CBW– show improving water quality trends example from Eshleman et al. 2013 (Avg N loading 1.9 lb/ac/yr)



More Studies

- Walker et al. 2009 (So Appalachians)
  - ~0.3 lb N/ac/yr
- Swank and Vose 1997 (SE)
  - ~0.19 lb N/ac/yr
- Binkley (NCASI 2001)-- over 300 streams in small forested watersheds across the country–
  - Avg of 1.8 lb N/ac/yr

Mapping Disturbed Forest Phase 6 Proposal

- Extrapolate from MODIS and work by WVU PhD student for 2000-2013
- Develop an average annual disturbance acreage by land segment
- Or calculate the annual disturbance by land-river segment (LRseg) would need to calibrate back to 1984
- Probably show a little disturbance in every LRseg as long as the total was representative of the long-term trend or magnitude