Record-setting Phosphorus Loads from Agricultural Watersheds in Ohio

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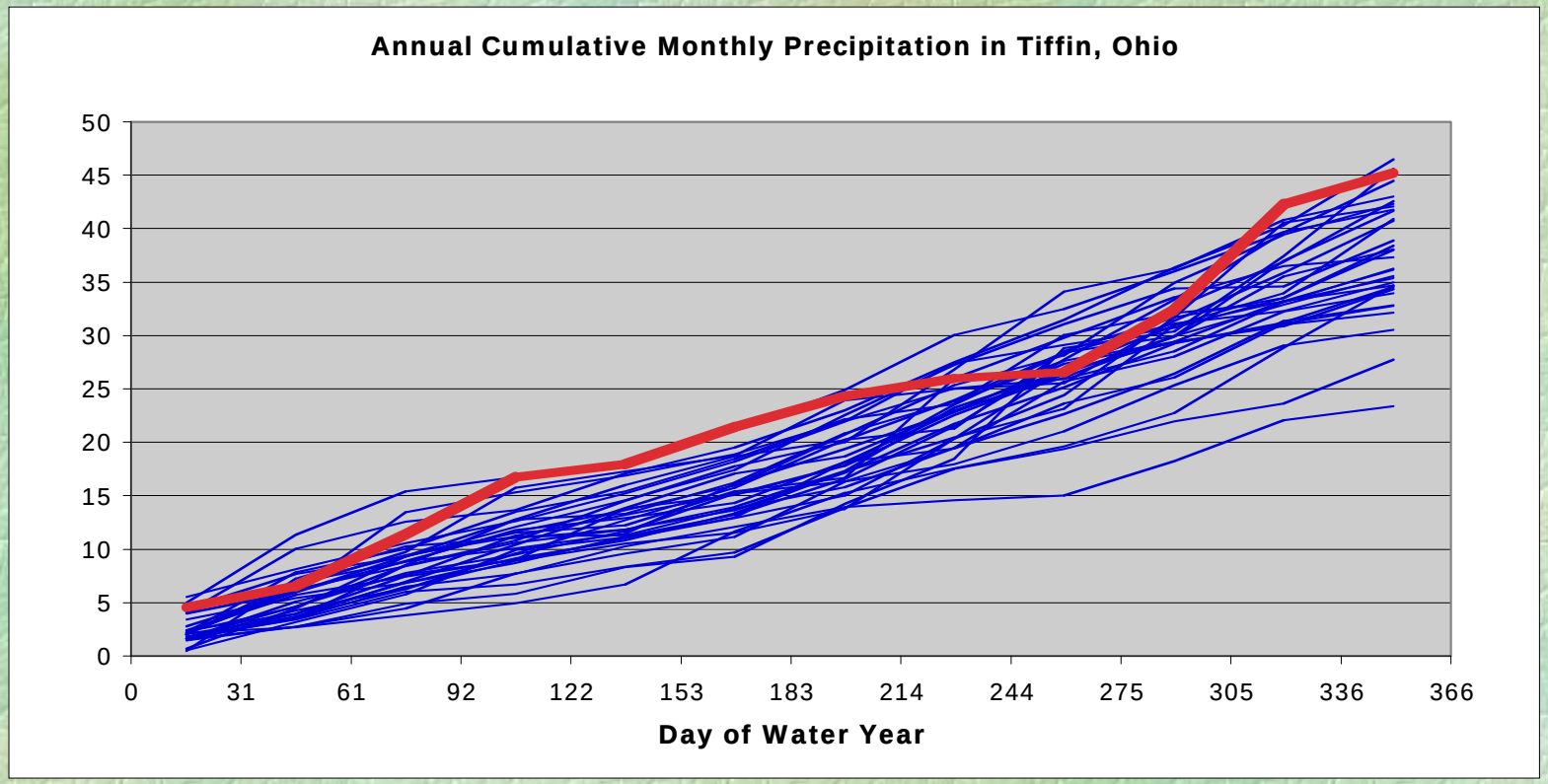
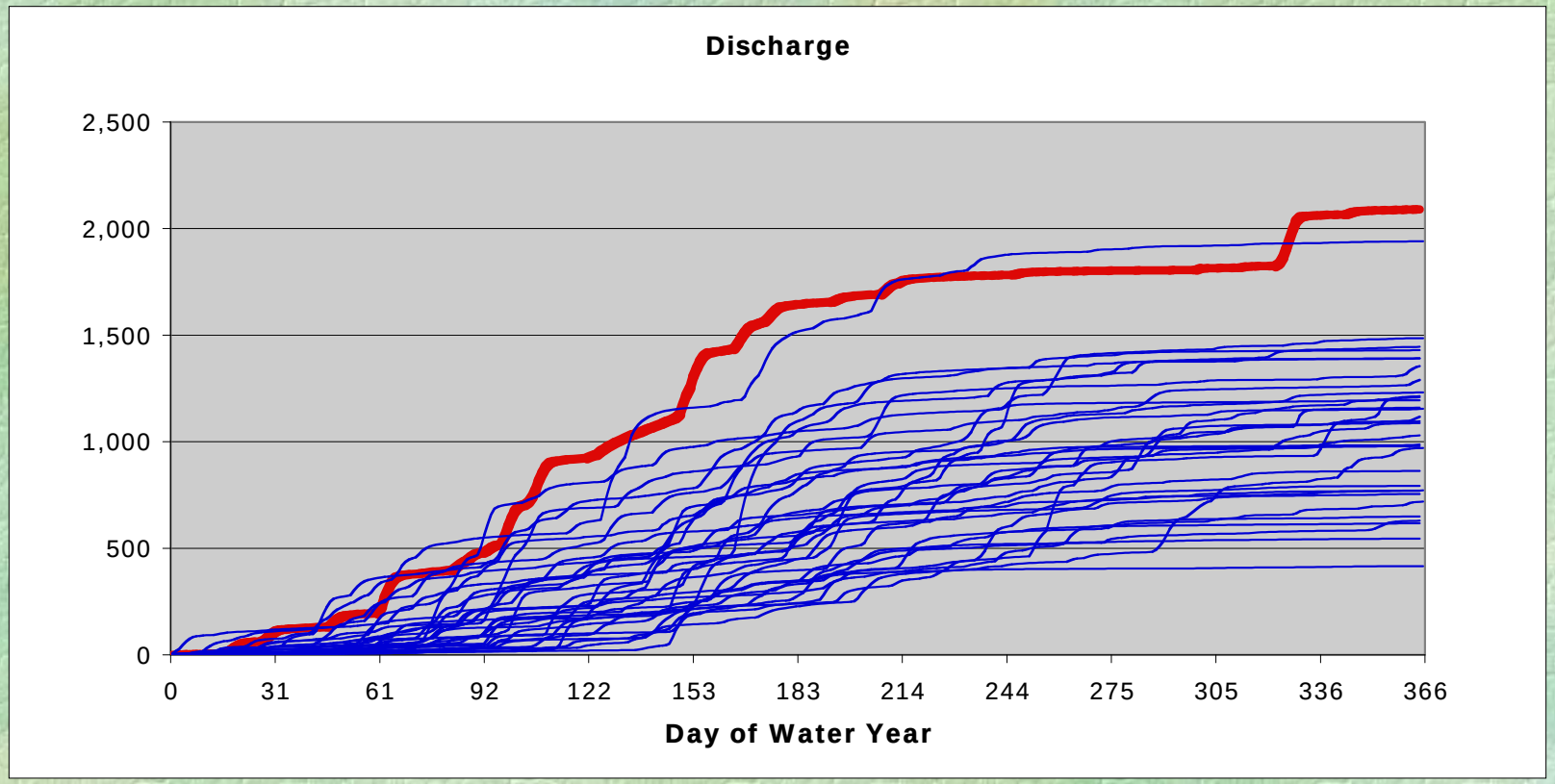
Evolution of Annual Loads, 2007

- Cumulative precipitation, discharge, loads for WY2007 compared with WY1975-WY2006
- Precipitation data for Tiffin
- WQ data for Sandusky River

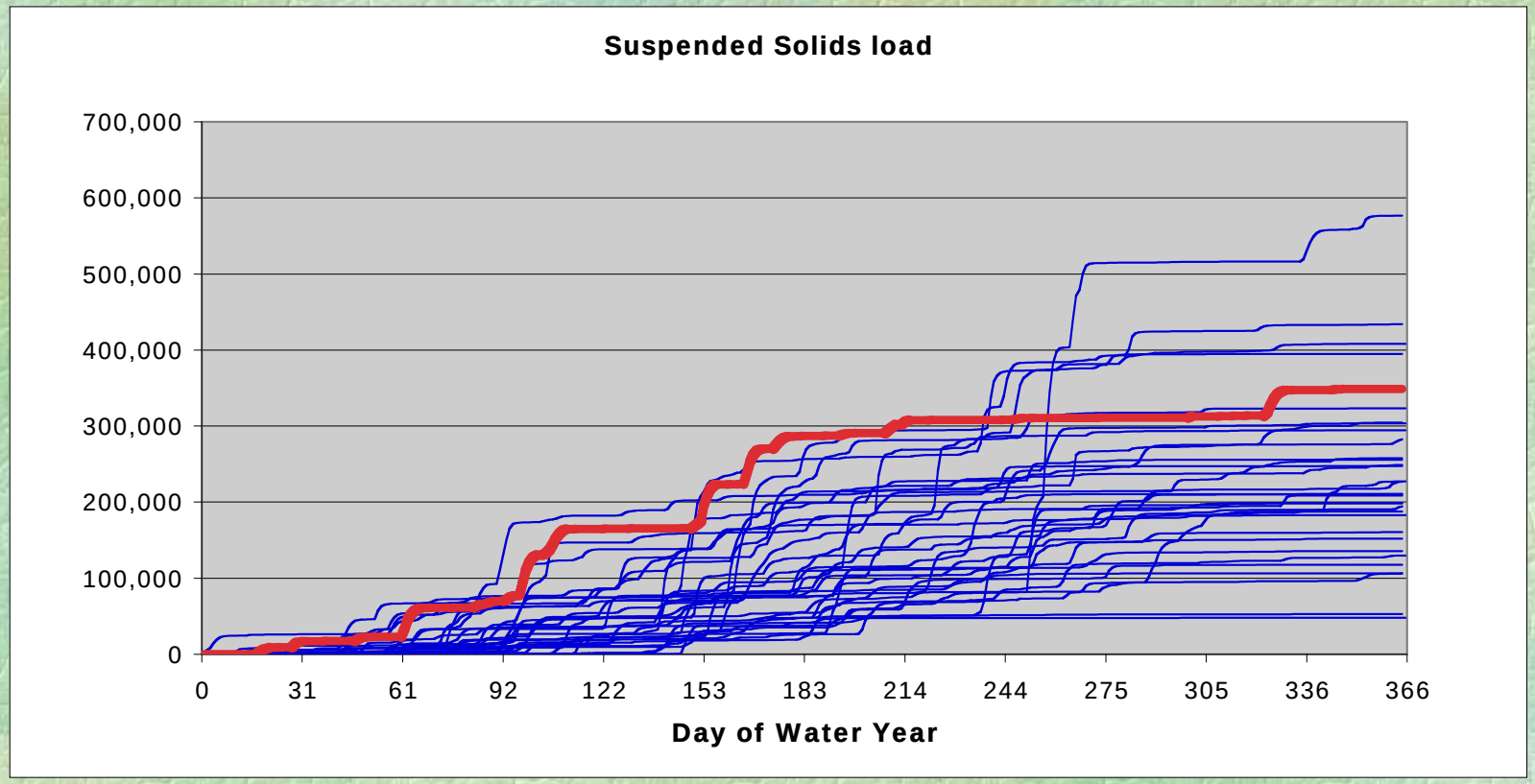
Evolution of Annual Loads, 2007: Precipitation



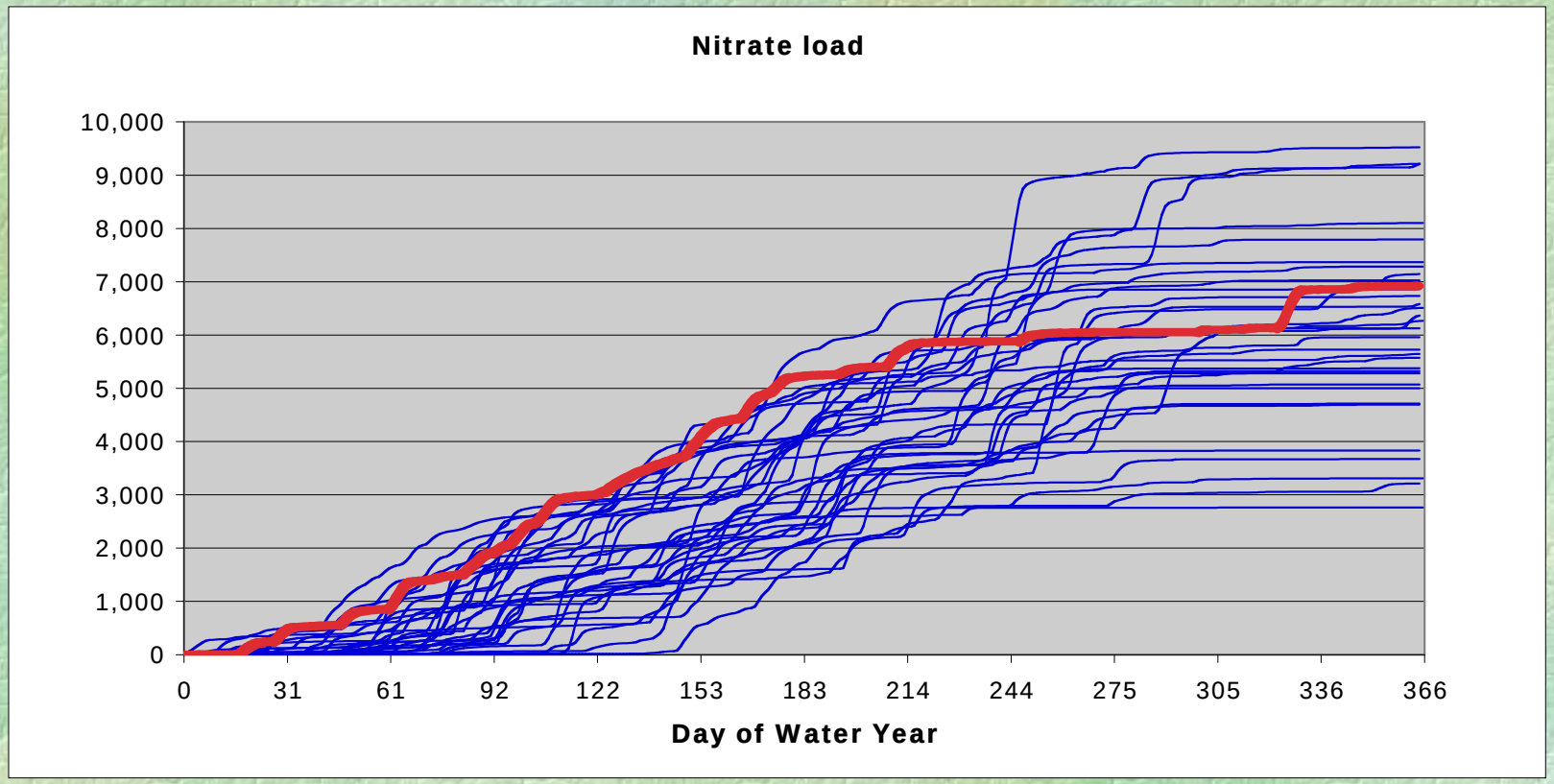
Evolution of Annual Loads, 2007: Discharge



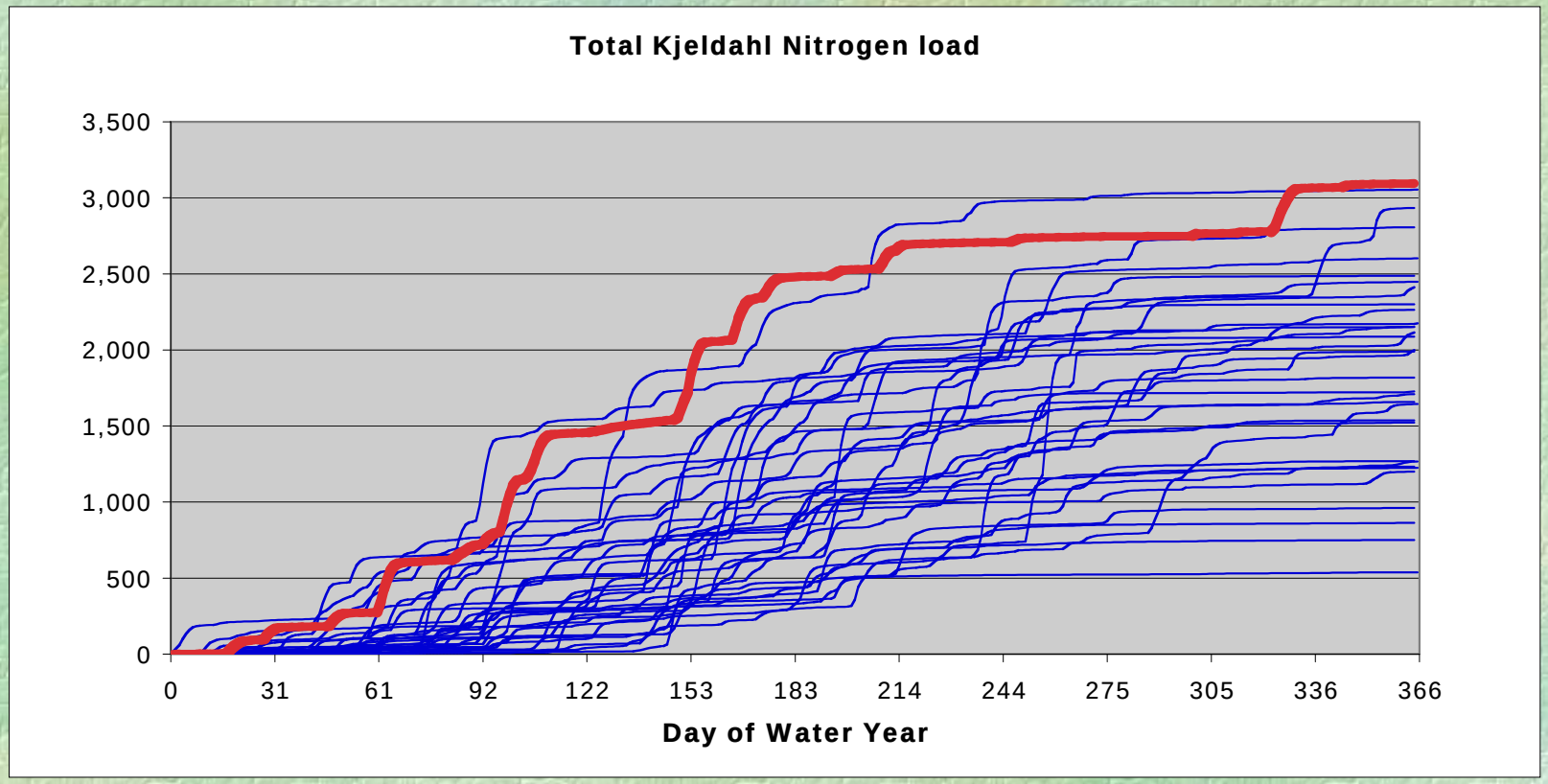
Evolution of Annual Loads, 2007: Suspended Solids



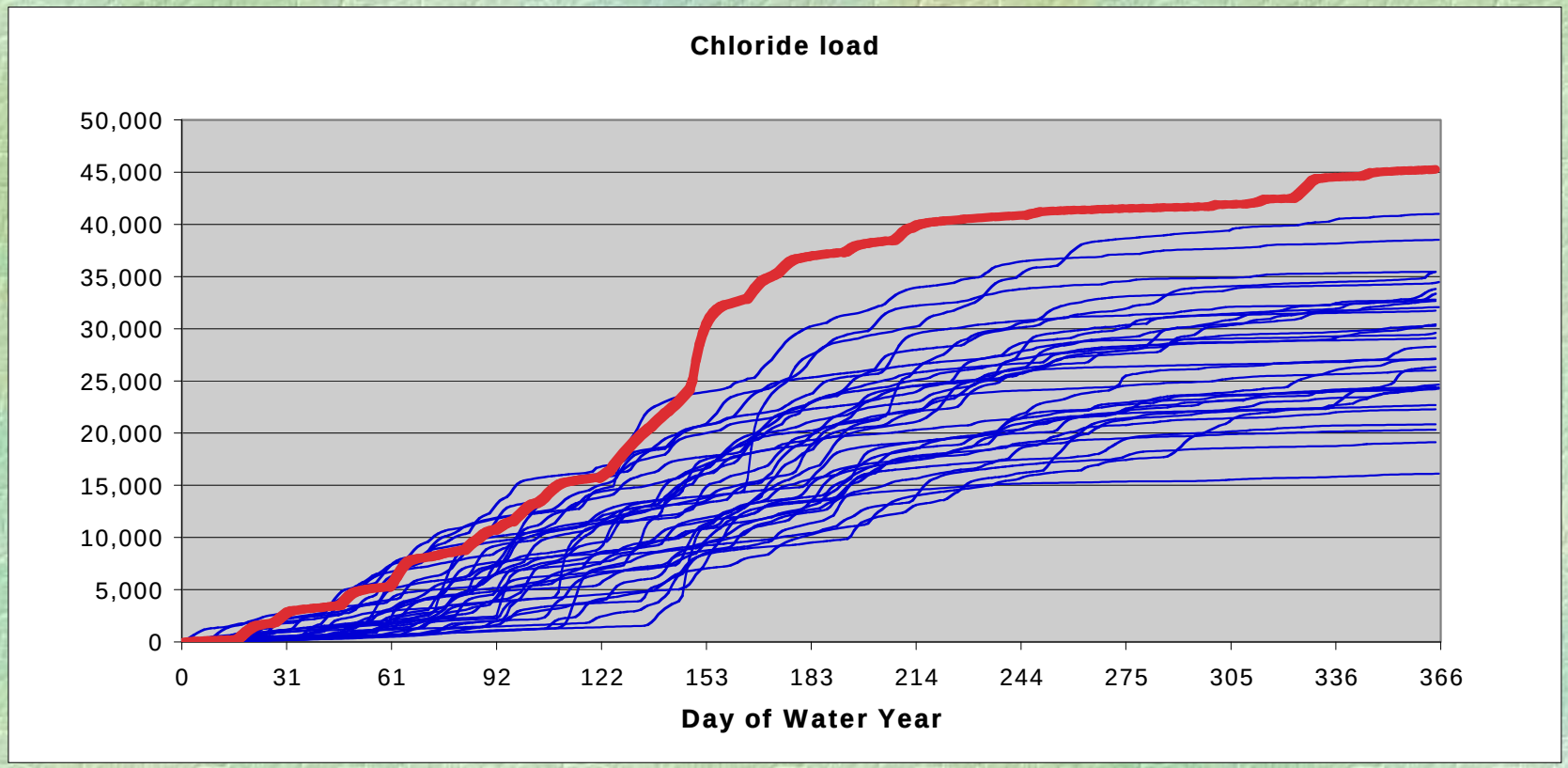
Evolution of Annual Loads, 2007: Nitrate



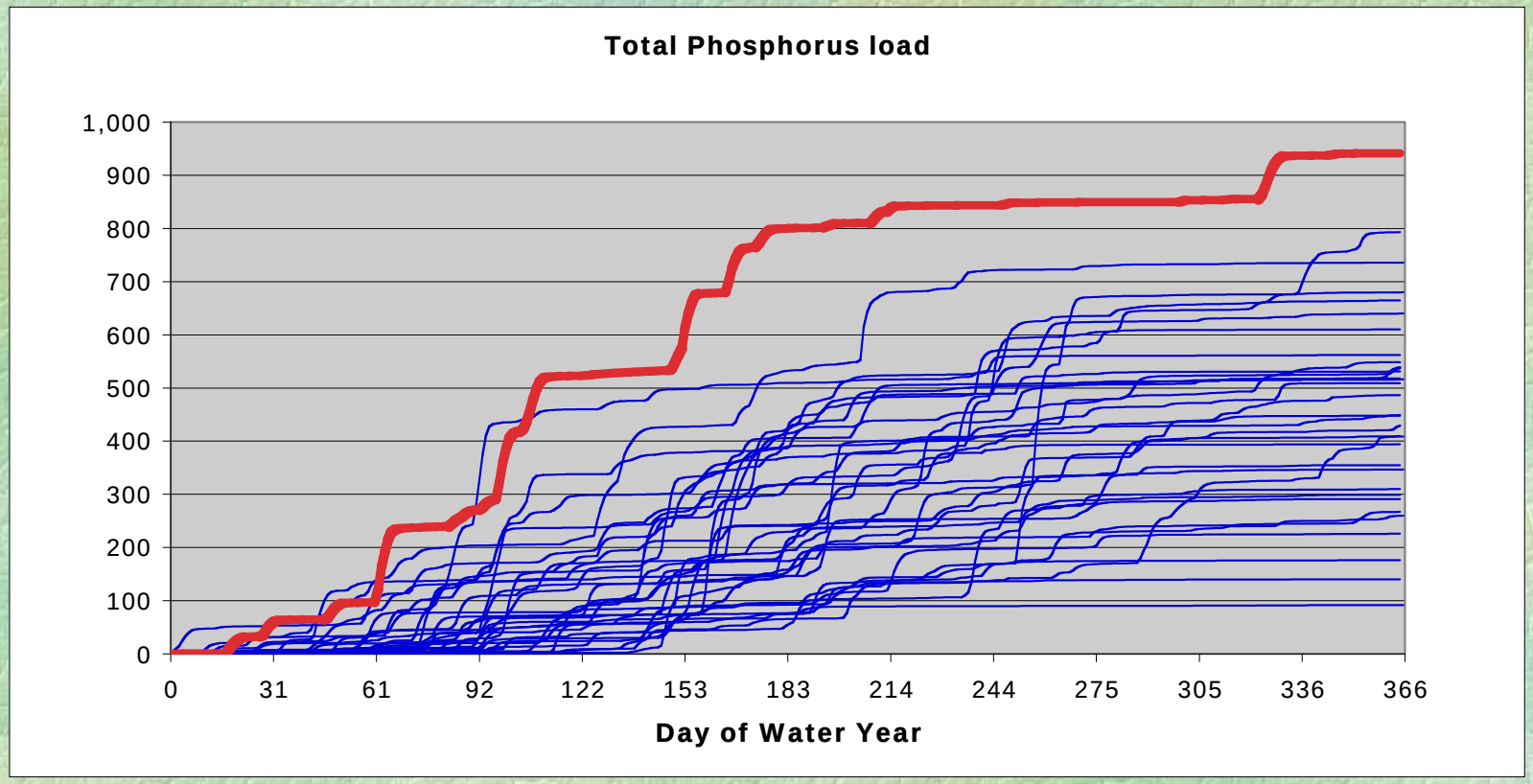
Evolution of Annual Loads, 2007: Total Kjeldahl Nitrogen



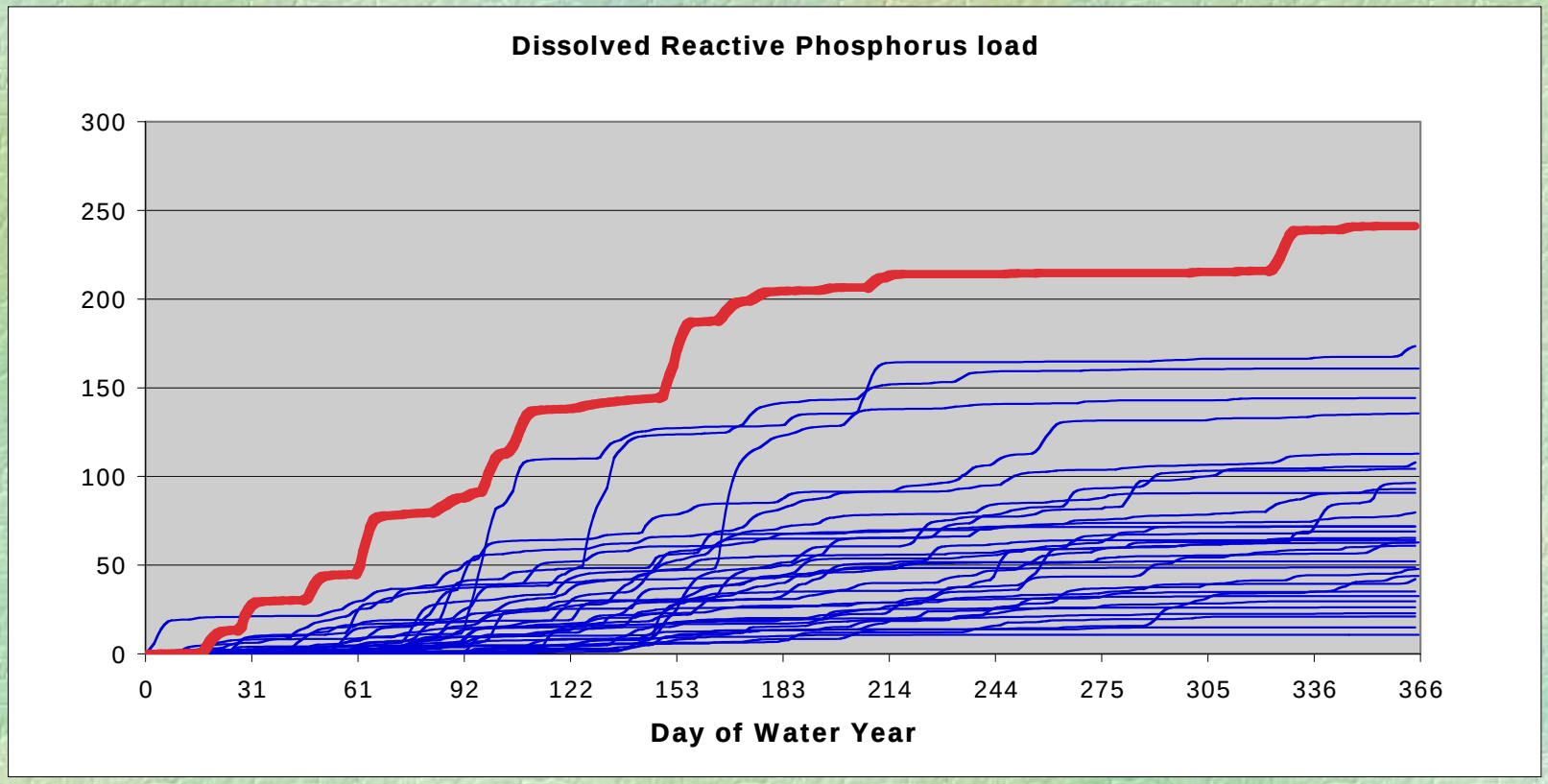
Evolution of Annual Loads, 2007: Chloride



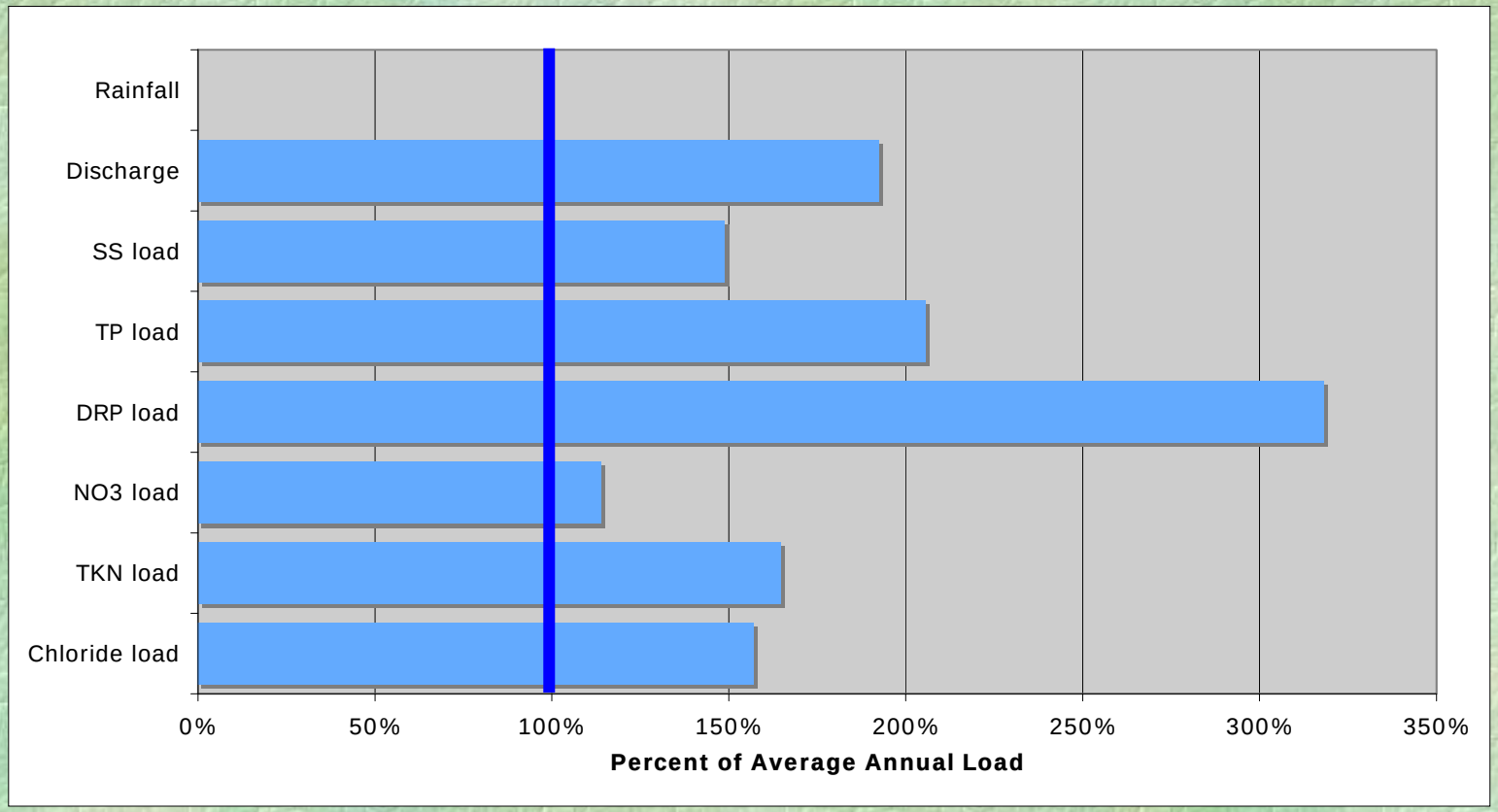
Evolution of Annual Loads, 2007: Total Phosphorus



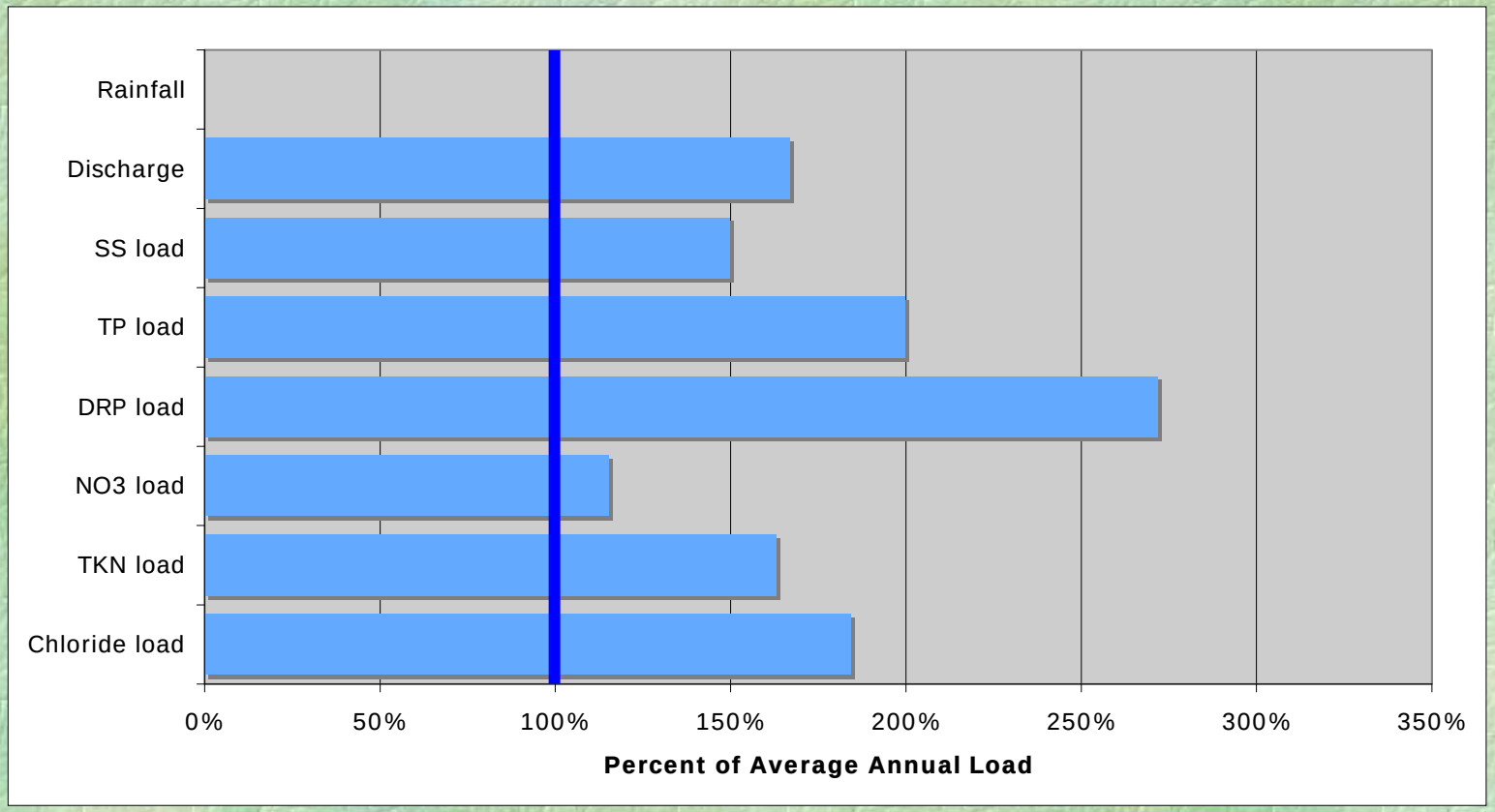
Evolution of Annual Loads, 2007: Dissolved Reactive Phosphorus



Loads 2007 compared with average

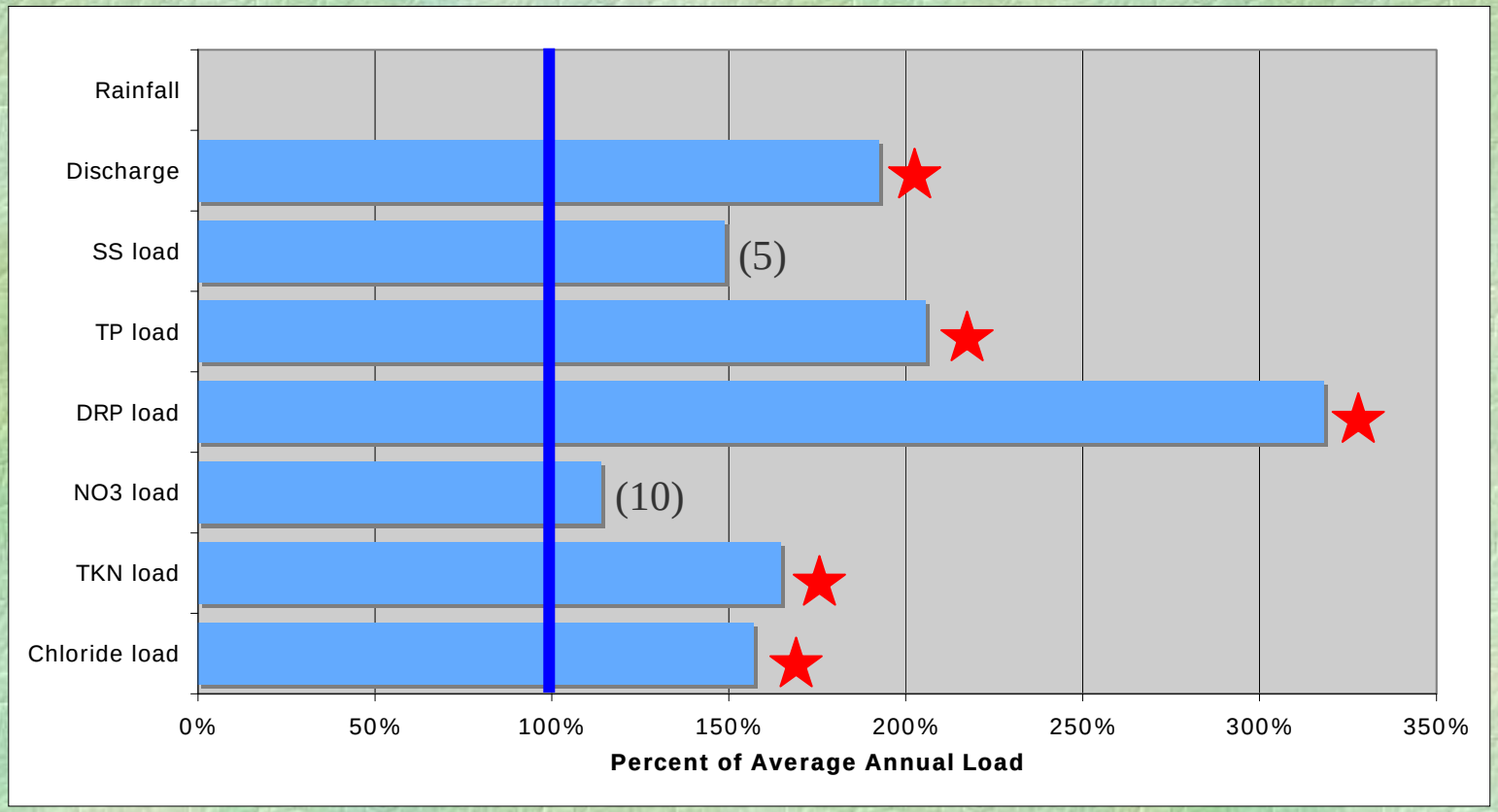


Loads 2007 compared with average



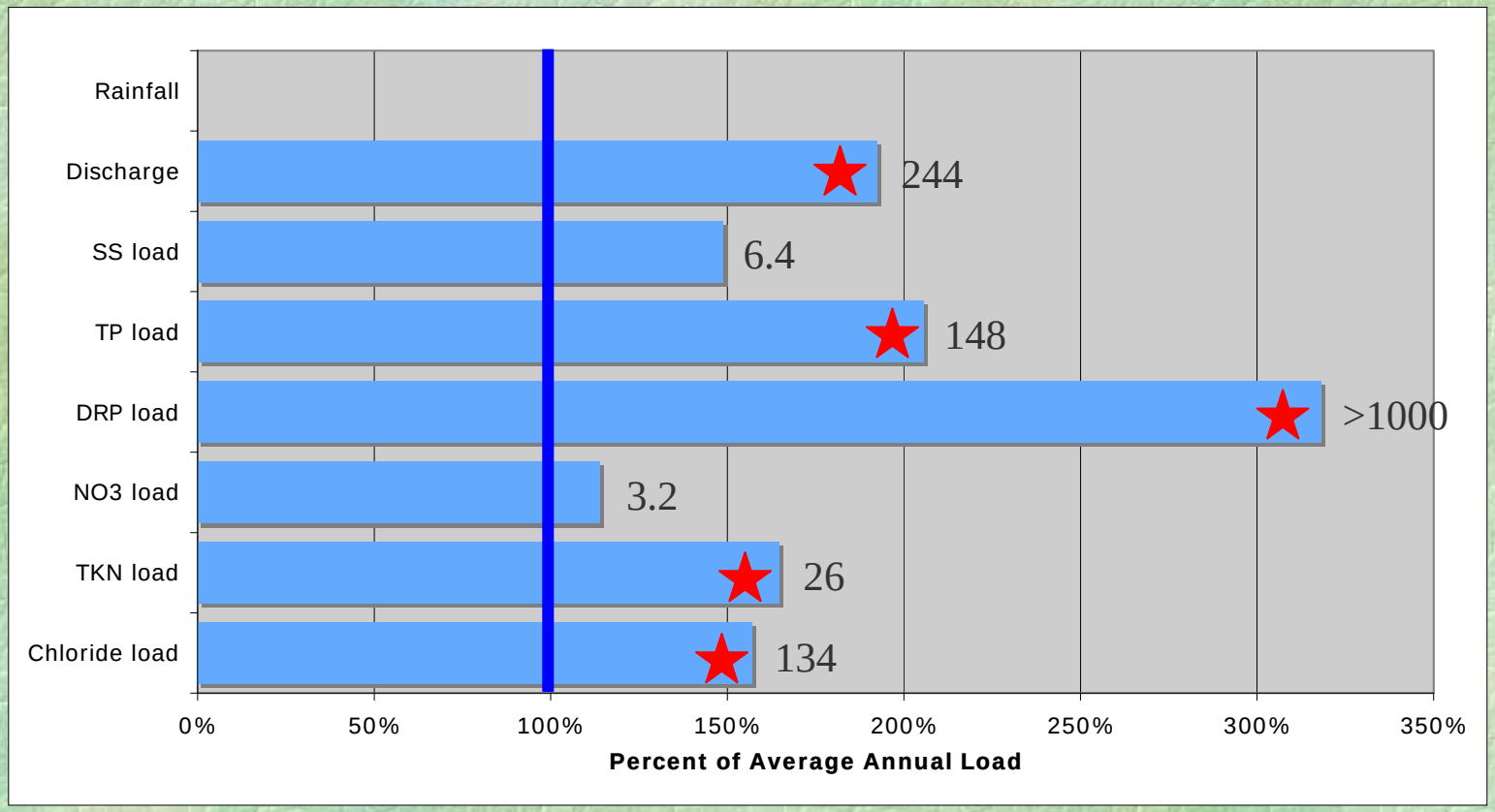
Loads adjusted for multi-year trends

Loads 2007 compared with average



★ Amount is a 30-year maximum
(10) Rank order among 32 years

Loads 2007 compared with average



★ Amount is a 30-year maximum

27 Recurrence interval (years)

What happened? Weather!!!

- Warm wet fall and early winter
  - 173% of average precip. for October-January
- Surface application of manure and fertilizer
- Rather dry May and June (1/3 of normal)
- 10” of rain in August (3x normal)
- Long-term trends reinforce the problem (DRP)

Conclusions

- A wet year with record loads of TP, DRP, TKN, chloride
- It’s the weather, dummy, more than ag practices
- However, better practices could have saved a lot of nutrients:
  - Incorporation of fertilizer and manure
  - Winter cover crops
  - Spring fertilization

Rock Creek 6/25/06