Agricultural Loading Rate Review Subgroup

Purpose:

Estimate of nutrient loading from various agricultural land types for Phase 6.0 of the Chesapeake Bay Watershed model

First meeting March 25, 2015, examined:

- Information on loading rates in published studies (Tetra Tech review) and unpublished studies (Water Stewardship compilation)

- Spreadsheet of studies reviewed by Tt

Concerns with Tt review

- Unexplained rise in loading rates after 1995 suggested ignoring studies before then
- How were effects of BMPs subtracted?
- Including studies from distant and different regions
- Loading rates from models versus measured

Selecting most relevant studies?

- Only 12 of 76 studies reviewed by Tt were in the Bay watershed
- Only 4 of the studies in the Bay watershed used measurements rather than models and did not need to adjust for BMP effects

Second meeting March 31, 2015:

Plan short-term and long-term approaches to obtaining best estimates of agricultural nutrient loading.

Short-term:
Provide relative loading rates by April 17th

- Experts within the group will provide informed estimates of relative loading based on their knowledge and information assembled by Tt and Water Stewardship.
- Focus on different crop types and surface runoff loads or subsurface nitrate leaching according to expertise
- Refer to Phase 5.3.2 estimates as a starting point
- Express loadings relative to corn for grain without manure (this crop type is well studied and a major nutrient source)

Meeting April 10th: Toward short-term goal

- Gene Yagow, Curt Dell, and Jack Meisinger presented data summaries and preliminary loading ratios versus corn

- Group began filling out a table of loading ratios for all phase 6 crop types

- Follow-up meetings are scheduled for April 16th and 17th

Anticipated problems

- Loadings of some agricultural land types such as pasture are likely to be very variable and poorly understood.

- Nutrient sinks such as riparian zones and croplands (not necessarily BMPs) can have big effects on delivery of agricultural nutrients to streams

Long-term plan to assess loading rates

- Replace short-term estimates with better founded estimates by late summer 2015, possibly in time to incorporate in Phase 6.0
- Analyze measurements of loading rates
- Future literature reviews should have oversight to guide compilation of relevant data for meta analysis
- EPA funding will help support this effort